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KEY TO ABBREVIATIONS.

- A.—Abstract.
 Ad.—Address
 B. R.—Book Review.
 C.—Correspondence.
 E.—Editorial.
 L. M.—Legislative Matters.
 M. M. S.—Massachusetts Medical Society.
 M. N.—Medical Note.
- Misc.—Miscellany.
 N. E. S. S.—New England Surgical Society
 N.—Notice.
 N. I.—News Item.
 O.—Obituary.
 Or.—Original Article.
 P.—Progress.
 S. N.—Society Note.

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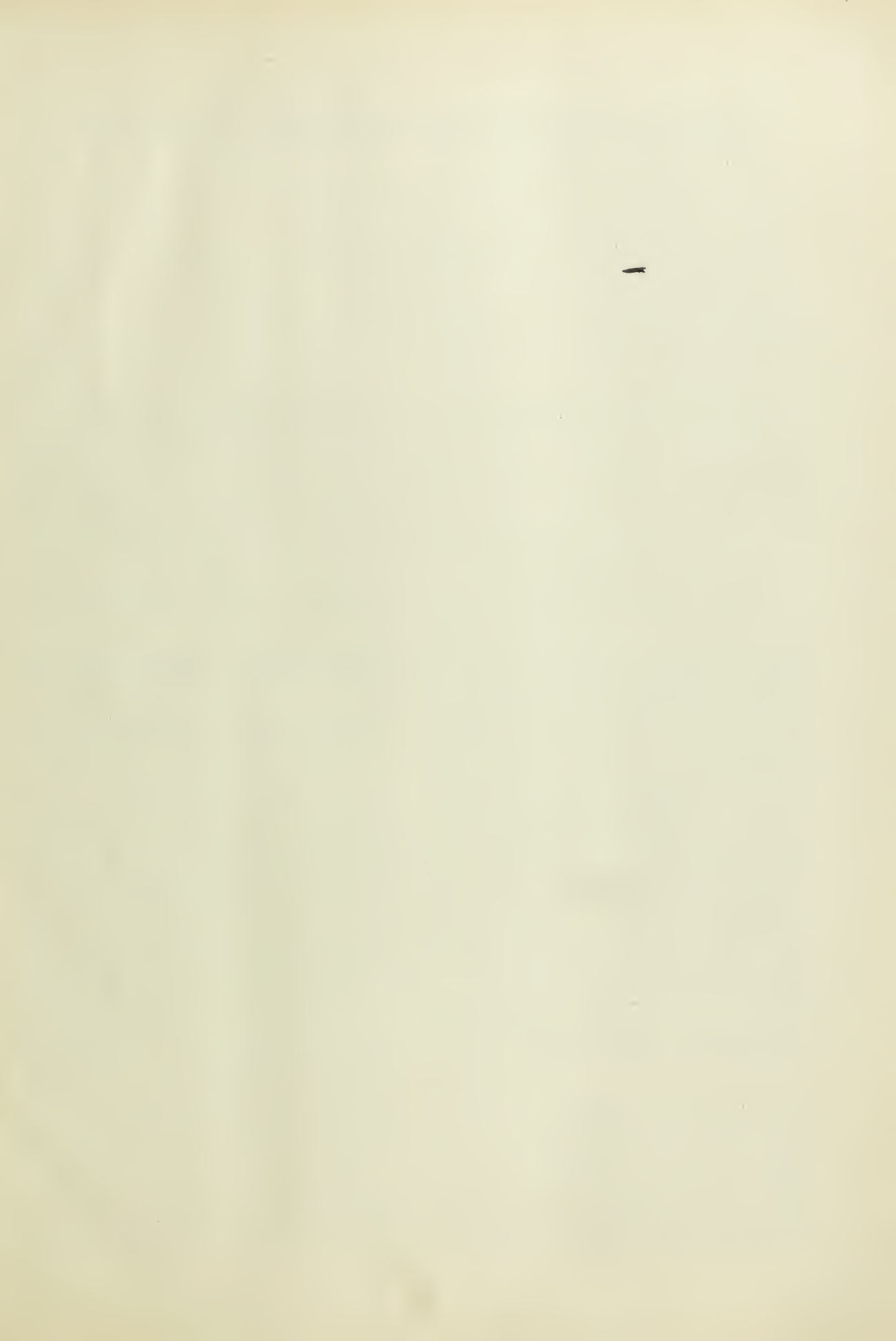
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The New England Surgical Society

SPINAL ACCESSORY PARALYSIS FOLLOWING NECK DISSECTIONS.

BY FRANK H. LAHEY, M.D., BOSTON,
AND
H. M. CLUTE, M.D., BOSTON.

WHILE the distribution of the spinal accessory nerves and the muscles supplied by them are universally known, it is our opinion that the functional incapacities resulting from interference with the conductivity of that nerve, either by cutting or scarring, have not been sufficiently demonstrated and stressed. Hence the seriousness of these functional disturbances is not customarily given due weight when operations are contemplated that make injury to this nerve a possibility.

In reviewing the ultimate results of neck dissections for tuberculosis of the cervical lymph nodes, at the Boston City Hospital and in our own private practice, for a communication to be published later, we have been impressed with the number of cases in which the injury has occurred and with the seriousness of the resultant deformity.

Letters were sent to 132 operated cases; it was possible, however, to communicate in person with but 46 of these cases. In this number, spinal accessory paralysis occurred in 12 cases, or 26.08 per cent.

We believe that it will be of manifest value to demonstrate on the screen several examples of the typical deformity which follows injury to the spinal accessory nerve, together with the anatomy of this nerve, in order to show the mechanism of the deformity and also to draw a few conclusions as the result of this study.

As is shown by the photographs of individuals with this lesion, the deformity, as far as visual appearance goes, consists of a lengthening and sagging of the shoulder on the affected side, a flattening of the area normally represented by the trapezius, particularly noticeable in the front and back views of the individual, due to the loss of the contour line made between the shoulder-tip and the nape of the neck by the superior edge of the trapezius. At times there is a deepening of the supraclavicular fossa, and in very thin persons the superior angle of the scapula may be seen to ride up out of its normal location so that it may even be observed to project beneath the skin, beyond the contour line just mentioned, between the shoulder and the head.

The loss of function is most marked by the inability of the individual to abduct the arm with any degree of power beyond a right angle, and by the inability to elevate the shoulders. The anatomical explanation of these functional limitations is based principally on the fact that the powerful trapezius is the main factor in holding the scapula toward the vertebral line when the large deltoid and less powerful



CASE I.—LEFT SPINAL ACCESSORY PARALYSIS.

Note the sagging left shoulder, the loss of the shoulder contour line, and that the left scapula sails away from the vertebral line as compared with the normal right scapula.



CASE II.—LEFT SPINAL ACCESSORY PARALYSIS.

Similar to Case I, except that the scapula is not visualized.

supraspinatus, whose origins are almost entirely on the scapula, come into action when heavy objects grasped in the hands are being raised above the level of the shoulder. The trapezius, with its broad base arising at the midline and its apex inserted into the external apex of the scapula, is admirably adapted to be the anchor muscle, so to speak, in powerful efforts to elevate objects with the arms. It must be recalled that the upper fibres of the trapezius draw the point of the shoulder upward and the fibres of the middle and lower third draw the scapula toward the midline and so rotate it as also to raise the point of the shoulder.

It is to be recalled also that after the deltoid has completed its action and has raised the arm through about 90 degrees, further eleva-



CASE III.—RIGHT SPINAL ACCESSORY PARALYSIS.

No. 1. Abduction of right arm beyond ninety degrees is impossible.



No. 2. Side view of same patient. Note again in this case the sagged and rotated scapula, together with the flattened shoulder, as compared with the normal left shoulder.



CASE IV.—RIGHT SPINAL ACCESSORY PARALYSIS.



CASE V.—RIGHT SPINAL ACCESSORY PARALYSIS.
Right arm abducted to greatest possible degree. Note the limited degree of abduction as compared with normal left arm, although left arm has been abducted only incompletely.



CASE VI.—BILATERAL SPINAL ACCESSORY PARALYSIS.
No. 1. Note the sagging of both shoulders, and on the left the superior angle of the scapula projecting above the contour line, as mentioned in the text.



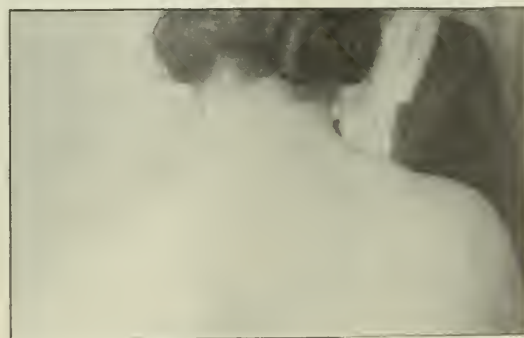
No. 2. Note in the front view the deepened supraclavicular fossae and prominent clavicles.



No. 3. Note in this view, as in Case I, the scapula sagging well away from the mid-line, due to loss of trapezius support. Note again the prominent superior angle of the scapula.



No. 4. Patient endeavoring to accomplish the greatest possible degree of abduction. Note the powerful deltoids in contraction, yet barely 90 degrees of abduction can be accomplished.



CASE VII.—LEFT SPINAL ACCESSORY PARALYSIS.

No. 1. Because of the unfortunate background, the faint outline of the left shoulder has been exaggerated by pencil mark. This woman suffered marked discomfort, as many of the cases do, soon after the injury, so that she had difficulty in continuing to earn her livelihood.



No. 2. Apparatus attached to corset, to hold shoulder up and take strain off levator anguli scapulae and rhomboid muscles.



No. 3. Same applied, showing its position under arm held up by nurse.

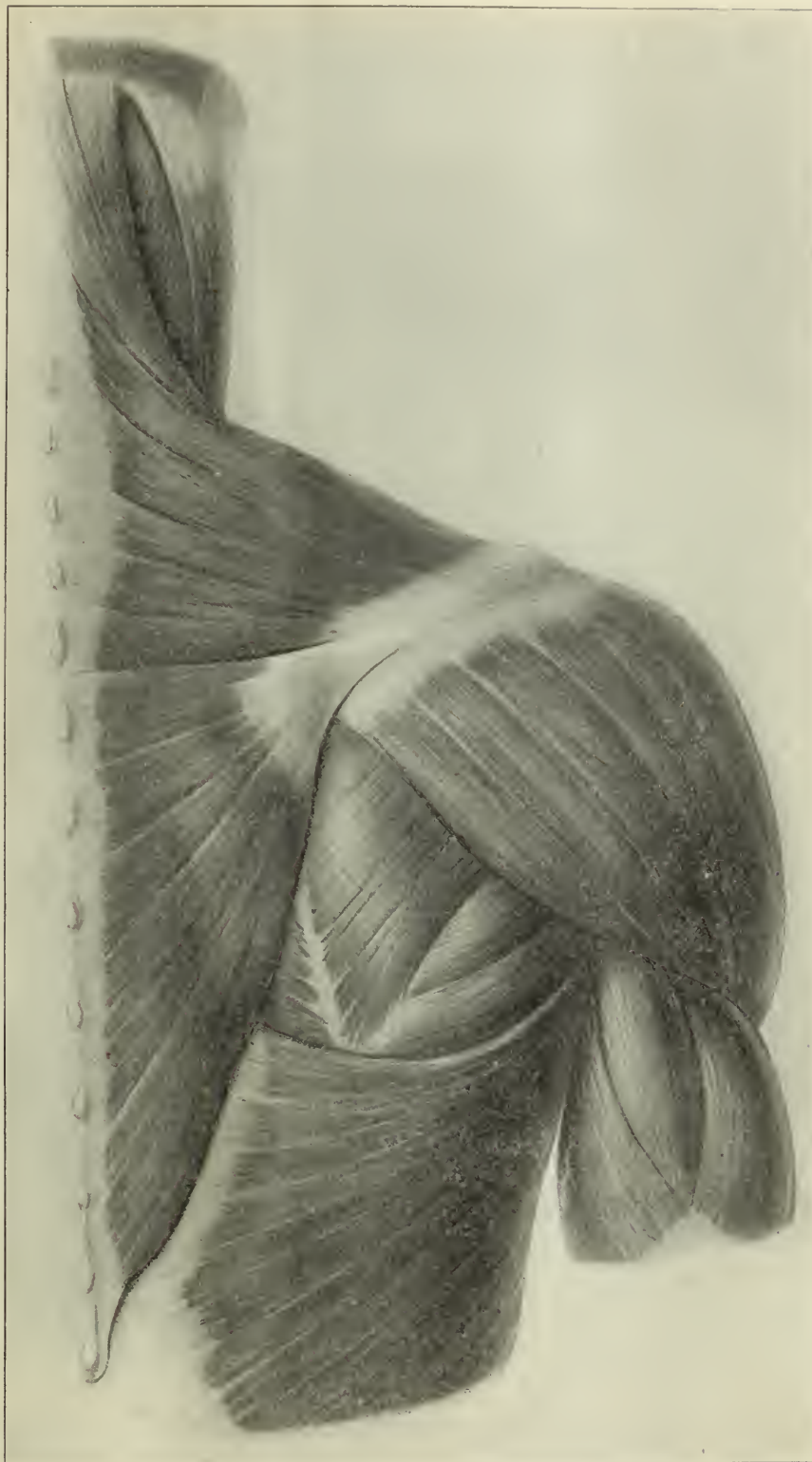


No. 4. Showing shoulder supported by brace. Compare with photograph No. 1 of Case VII.

tion through another right angle is accomplished by a rotation of the scapula resulting from the action of the serratus magnus and the trapezius. With those anatomical facts in mind, the explanation of the major part of the loss of function is at once evident.

When one recalls also that after trapezius paralysis the greater and lesser rhomboids, both relatively light muscles, are the sole structures (excluding the levator anguli scapulae) that fix the scapula toward the midline against the weight of lifted objects and the combined powerful efforts of the deltoid and supraspinatus, it is not difficult to understand why the shoulder sags and abduction beyond a right angle is impossible.

Since in this survey we are interested principally in the spinal accessory injuries as they occur in connection with neck dissections, and not in those rare spinal accessory injuries high in the neck or accompanying fractures of the base, mention will be made only of the anatomy of the spinal accessory as it is met with in the anatomy of neck dissections. By means of the accompanying illustrations of dissections of the spinal accessory nerve made under our direction in the anatomical laboratory at Tufts College Medical School, the course and relations of the spinal accessory nerve, together

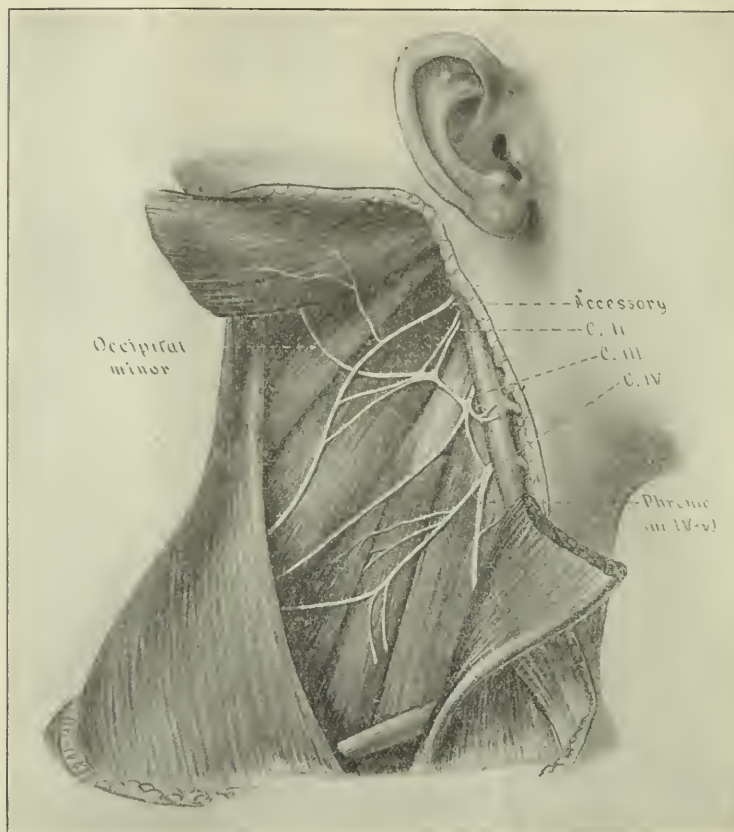


ANATOMICAL PLATE No. 1.

A semi-diagrammatic illustration made from a dissection of the trapezius and shoulder girdle muscles. Note how the trapezius with its broadly attached base acts as an anchor muscle between the powerful shoulder girdle muscles here, showing deltoid, sub-

scapularis and teres muscles, all of which find their entire origin, excepting a few fibres of the deltoid arising on the clavicle, on the scapula and are inserted into the humerus.

This plate demonstrates why with trapezius paralysis the shoulder sags and the scapula moves outward.



ANATOMICAL PLATE No. 2.

A semi-diagrammatic illustration made from a dissection of the spinal accessory and the second, third and fourth cervical nerves. Note the junction of the second cervical, with the spinal accessory nerve to form the sterno-mastoid plexus. Note, also, from their

location how possible it is to injure not only the spinal accessory but also the second, third and fourth cervical in dissections about the great vessels.

In this illustration the spinal accessory is pulled somewhat upward by the turned-up sterno-mastoid muscle.

with the second, third, and fourth cervical nerves, can be visualized very readily. Note in Anatomical Plate No. II the junction of the second cervical nerve with the spinal accessory beneath the sterno-mastoid to form the sterno-mastoid plexus. Note in Anatomical Plate No. III the anastomosis between the third and fourth cervical nerves in the spinal accessory beneath the trapezius to form the subtrapezius plexus. It is this anastomosis or plexus which is depended upon to provide innervation to the trapezius when the trunk of the spinal accessory is cut.

As the result of this study, it must be admitted that following extensive dissections for the tubercular glands of the neck, spinal accessory paralysis is quite apt to occur, and that it is a lesion so interfering with function of the arm and shoulder girdle as to be of serious consequence.

It must be admitted that in this series of cases, either that the third and fourth cervical nerves failed separately to assume the function of the spinal accessory, or that they were also destroyed in the course of the dissection.

Furthermore, inasmuch as some of these cases were our own private cases, in which

both our records and certain recollections (from our particular interest in this subject) have indicated that the spinal accessory was carefully preserved throughout its course, it must also be admitted that the conductivity of the nerve may be impaired permanently by the trauma consequent to its dissection.

The report in the literature of two cases of this paralysis occurring, one ten and the other fourteen years after dissections, makes the avoidance of this deformity all the more uncertain.*

Consequently, as the result of our personal experience, we believe that in spite of the reports that there will be sufficient innervation through the third and fourth cervical nerves, the sacrifice of the spinal accessory is unsound surgery, since there are apparently cases in which these nerves do not innervate the trapezius and one has no way of ascertaining this fact before operation.

Based upon our study of this series of cases, we believe that the spinal accessory nerve is probably quite susceptible to the effects of trauma, and that its regenerative capacity fol-

* Bruce, A. Ninian, M.D., D.Sc.: Review of Neurology and Psychiatry, Edinburgh, Vol. xiii, 1915, p. 51.



ANATOMICAL PLATE No. 3.

A semi-diagrammatic illustration made from a dissection of the spinal accessory throughout its course beneath the trapezius. The trapezius has been turned back with its base left attached at the mid-line. Note the junction of the third and fourth cervical nerves with the spinal accessory to form the subtrapezius plexus. It is these two cervical nerves which are depended upon to maintain function when the spinal accessory trunk is cut higher up. Absence of this junction is often noted by anatomists, and in

this series, as stated in the text, either must have existed or the third and fourth cervical nerves have been interrupted, together with the spinal accessory nerve.

Note in the illustration beneath the turned-up trapezius, the greater and lesser rhomboids, the sole muscle, excepting the levator anguli scapulae, holding the scapula toward the mid-line. It is the over-stretching of these muscles which doubtless produces the shoulder ache immediately following the injury, and passing away later when these structures are stretched out and paralyzed.

lowing trauma is quite limited, particularly when this regeneration must occur while the nerve is still located in a field that is to be the site of considerable scar tissue formation.

With these facts in mind, we believe that stimulation of the nerve to produce contraction of the trapezius, thereby identifying the spinal accessory nerve, should never be accomplished by pinching the nerve either with forceps or hemostats, no matter how lightly it be done. We have now provided for this purpose a battery with electrodes which may be sterilized. Anyone who has made use of the pernicious and really senseless procedure of pinching the nerve, whether the spinal accessory in neck dissections or the long thoracic and subscapular in axillary dissections (and we admit to having done it), cannot fail to recall that after one or two light nips, conductivity was interrupted and the muscle no longer contracted. Therefore in our opinion the nerve should be handled with the greatest gentleness and care.

CONCLUSIONS.

In undertaking neck operations for lesions not necessarily fatal, we believe that the loss of function secondary to spinal accessory paralysis must always be considered of serious consequence, limiting power and motion as it does; and of possible occurrence, first, because there are instances in which it is practically impossible to preserve the nerve and remove the diseased foci, and second, because interruption in conductivity may follow even when the nerve has been preserved.

It is our conviction that if one is to undertake neck dissections of the type spoken of above, he should familiarize himself thoroughly with the course and relations of the spinal accessory and second, third, fourth, and fifth cervical nerves, and take meticulous pains for their preservation.

DISCUSSION OF DR. LAHEY'S PAPER ON SPINAL ACCESSORY PARALYSIS.

DR. A. M. ROWLEY, Hartford, Conn.: Dr. Lahey has very interestingly and instructively presented the subject in his paper. I did not know that there were so many cases that could be gotten together and tabulated as he has shown today.

It is unusual to see cases of this paralysis, and it is surprising, with the number that he has shown, that there are not more traumatic cases. In the future, the nerves will be saved because blunt dissections of the neck are not as common as they used to be, due to the correction of focal infections in the mouth, tonsils and teeth.

One thing Dr. Lahey did not speak about in the child, was the tendency to develop a lateral curvature of the spine, together with the drooping of the shoulder, occasioned by the paralysis of this nerve.

DR. ROBERT B. GREENOUGH, Boston: I think Dr.

Lahey is to be congratulated upon the clearness and completeness of his treatment of this important subject. In fact, little can be added in discussion.

I would call attention, however, to the fact that neck dissections are performed for a number of different lesions. When the disease is one which does not demand complete removal, as in tuberculosis, anatomical consideration, such as preservation of the spinal accessory, must be considered as far more important than when the dissection is performed for carcinoma and the success of the operation depends entirely upon the complete removal of the disease. In such cases anatomical consideration must take a second place and the effort must be made to remove the disease completely, if such a possibility exists.

My own experience in neck dissections has had to do more especially with operations for cancer, and I may say that I have been impressed with the fact that a most extensive removal of the structures in the neck produces relatively little disturbance of function, even when the spinal accessory and all of the superficial cervical nerves were sacrificed.

DR. CHARLES A. PORTER: Although I am surprised at the number of cases which Dr. Lahey has gathered, I believe it a more common injury than was thought, for surgeons have had in mind, the sterno-mastoid paralysis, and not the resulting lesion to the trapezius muscle. We should be grateful to Dr. Lahey, for calling attention to the bad results, of the division of the eleventh nerve.

DR. JAMES S. STONE, Boston: I should like to say that in the cases of tuberculosis which we do at the Children's Hospital we invariably find that glands completely surround the spinal accessory nerve in its first portion.

DR. H. M. CLUTE, Boston: That a marked deformity and serious disability may follow a careful dissection of the neck is obvious from the pictures you have seen. Even in cases in which the spinal accessory itself is carefully preserved, a certain degree of muscle weakness has at times resulted. Doubtless this may be accounted for by the normal variations in the anastomoses between the second, third, and fourth cervical nerves and the spinal accessories, which result in a varying degree of function for the accessory nerve.

Tuberculous glands of the neck most often demand dissections in the region of the spinal accessory, and the question at once arises as to what cases require surgical interference. Certainly, we should operate with the most positive indications and only when we feel that no other method of treatment may be substituted for surgery.

We hope to show in a later paper that x-ray should be more frequently used in these cases, more particularly in those associated with draining sinuses. A partial removal of a mass of tuberculous gland with careful preservation of the spinal accessory nerve, and later, x-ray treatment, is preferable to a radical primary removal. Glands which have broken down and formed an abscess should be incised and curetted, and later treated with x-ray and tuberculin. Glands discrete and not encasing may, of course, be excised with care of the nerve. We believe that in a neck dissection the spinal accessory nerve should be picked up and preserved just as carefully as the ureter in a radical hysterectomy, or the facial nerve in the excision of a parotid tumor.

In a few cases of trapezius paralysis, we have tried the use of a brace. In one case we felt that we had benefited the patient. This brace, acting from the axilla, to lift the shoulder, was worn for

several months. When this patient was last seen, the disability in the shoulder was much improved and the deformity much less evident, although the brace had not then been worn for some weeks. In addition to the brace, we employed massage.

Though we do not feel that tuberculous glands should never be dissected, we are convinced that such cases should only be done with the most careful regard for the nerve supply of the muscles of the neck, and that the spinal accessory nerve should always be preserved.

DR. FRANK H. LAHEY, Boston: There is very little to add. It is obvious that in cases of cancer of the neck one disregards the spinal accessory, and this paper is aimed at "bloc" dissections of tuberculous glands. As Dr. Clute has said, these dissections of the glands are not worth while. Better results can be accomplished with the x-ray and with the treatment of the locally broken down glands. Incidentally, I believe there is a feeling that incision of softened glands is a safe thing, and that you don't get the spinal accessory nerve in this procedure. In this series there have been cases where the spinal accessory has been cut, not in "bloc" dissection but in cervical abscesses, where the visiting surgeon thought it was perfectly safe to turn the case over to a house officer, but the patient got a shoulder drop just from incision. Therefore, you should have the location of this nerve in mind just the same when abscesses are incised and glands poked into for drainage.

RECURRENT RENAL CALCULI.

BY J. DELLINGER BARNEY, M.D., F.A.C.S., BOSTON,
*Chief, Genito-Urinary Department, Massachusetts
General Hospital.*

DURING the past twenty years, thanks chiefly to the x-ray, the diagnosis of renal calculus has been brought to a point of extraordinary accuracy. One does not have to go back many years to recall the operations for a supposed stone in the kidney, where frequently a perfectly innocent organ was opened, needled and thoroughly mauled, there being no stone found, and the symptoms due to disease of the pancreas, gall-bladder, appendix or some other organ.

But in spite of the great strides which have been made, the situation today presents many pitfalls, both in diagnosis and treatment. I have been studying the problem of renal calculus intensively for the past year with a view not only to focusing greater attention on the question, but also in an endeavor to find ways and means of improving what is really a serious situation. Although it seems a simple matter not only to detect in, but also to remove from a small cavity like the renal pelvis a comparatively small stone, my investigations have shown that the contrary is not infrequent.

Before proceeding to a discussion of the details of diagnosis and of treatment it may be well to review a few of the more important points presented by patients suffering with renal calculi. For this purpose I have analyzed some cases in which stone was proved

occurring in the Genito-Urinary Department at the Massachusetts General Hospital. There are 139 of these cases. That the male shows a greater predisposition for stone than the female is shown by the fact that whereas there were 108 men in the series, there were only 31 women. The exceedingly low mortality of the disease, a point which will be discussed later at greater length, may be accounted for partly by the fact that most individuals who come to operation are in the prime of life. Only eleven of our patients were past 50 years of age, while the majority were between 21 and 30 years old. One might almost say that renal stones are uncommon during childhood and old age.

It is well known, in fact, the surgeons of an older day proved by their fruitless efforts to locate a kidney stone, that many other intra-abdominal conditions will often so simulate those produced by a renal calculus, that the best of us may occasionally err, even though every opportunity is at hand to make an accurate differential diagnosis. In a previous study of a series of 200 cases of kidney stone, the writer pointed out that "53, or 18%, had had one or more previous operations, mostly (36) on the appendix, but including almost every other abdominal organ as well."

In many of these cases no use whatever was made of available and well-known diagnostic measures, but the surgeon placed too great a value on what he could see or feel. Certain cases of right-sided renal calculi, with high temperature, pain, tenderness, distention, nausea, and vomiting, and accompanied not only by a negative x-ray, but a normal urine as well, may easily confuse the most careful and conscientious physician. We may well forgive the surgeon, who with this picture before him, perhaps in the middle of the night, and fearing the grave consequences of a gangrenous appendix, gives the patient the benefit of the doubt and operates in the belief that he is forestalling a general peritonitis. The patient would indeed be ungrateful who would not hold the surgeon guiltless under such circumstances. This applies, however, only to the acute cases. When it comes to the more chronic conditions, with symptoms which have persisted off and on for years, I believe there should be little or no reason for operating on the appendix or some other organ when a renal stone is the real offender.

To return once more to our cases, one is at once impressed not only by the mildness, but also by the long duration of the symptoms presented by many patients. Four cases had had symptoms for less than a week, nine had had symptoms for two months, eighteen for six months, and eight for one year. But in thirty-nine cases there had been symptoms for three years, while in eleven the duration was five years, in fourteen for ten years, and seventeen cases dated the onset of the disease to an even more remote period.

In other words, renal stone may be most insidious, and as we all know, may acquire enormous size with practically no symptoms at all. In connection with this remark, I wish to speak of a case I operated upon about a year ago. The patient was a young, healthy man, recently discharged from the Army, who was not only accepted by his draft board, but also saw exceedingly active service in France. A few months before I saw him, and for the first time, he began to have a slight aching sensation in the left loin. Other than this there were no symptoms whatever. The urine was slightly hazy, and abdominal examination revealed a non-tender, freely movable, stony hard mass in the region of the left kidney. X-ray showed this to be a calculus of enormous size, and nephrectomy was done.

In general, however, it may be said that the smaller the stone, the more frequent and the more severe will be the symptoms to which it gives rise. The production of pain in the region of the kidney is perhaps the most common result of renal stone, but it is by no means uncommon to have this symptom in other parts of the body. It is also worth remembering that a stone in one kidney may produce pain in the opposite kidney, and I have seen two or three cases lately with this phenomenon. On the other hand, the first indication of a stone in the urinary tract may come from other directions, such as hematuria, dysuria, chills and fever, pyuria, frequent urination, and even retention of urine.

Among the items of physical examination it is worth while to state that in only sixty of our cases (about 43%) was there any tenderness in or in the region of the stone-bearing kidney at the time of examination. As might be expected, pus was the most frequent element in the urinary sediment, it being found alone fifty-nine times and combined with blood forty-one times. The fact that is more important, however, is that in 26 cases, blood alone was found in the sediment, while in twelve cases, or 8.6%, the urine was persistently negative. This substantiates the observations of Cabot, who in 150 cases reported a persistently normal urine in 14%, and also bears out the statement of Braasch, who found the urine normal in 12% of 294 cases of ureteral stone.

It has already been pointed out that the x-ray is largely responsible for our present-day acumen in the matter of diagnosis of stone. Ordinary clinical methods of observation are by themselves of little value, and but little help from a diagnostic viewpoint is to be gained in many cases from the cystoscope and ureteral catheter.

A positive x-ray was recorded in 125 cases, but one must remember that the roentgenogram will fail to show stones in from 6 to 11% of cases. To illustrate this point, let me briefly recite one instance. The patient was a man of

thirty-five who had been seen off and on in the Out-Patient Department for about two years, with intermittent attacks of right-sided pain and other symptoms, both subjective and objective, of right renal calculus. Repeated x-ray showed nothing to indicate stone, and several pyelograms revealed what we considered a normal pelvis. I finally operated upon this man, and found a flat stone about the size and shape of half a clam shell in the pelvis of the right kidney. The chemist reported that the composition of this calculus was chiefly uric acid, which might well account for its invisibility. On the other hand, it is hard to account for the fact that after its removal from the kidney, repeated efforts to conceal it from the x-ray by various devices were entirely unsuccessful.

In the examination of the x-ray film one must remember that superimposed stones may, and frequently do, give but one shadow, so that on this evidence alone no man can be sure of the exact number of stones present. I consider the recognition of this point of very great importance.

It has already been remarked that cystoscopy and catheterization of the ureter may alone be of little diagnostic value in renal calculus. At the same time it is a procedure which is essential in most instances. It will tell us whether the patient has two kidneys, a bit of information which is often indispensable and often unobtainable in any other way; it gives correct information as to the presence or absence of infection in either kidney; it determines the patency of the ureter; and, finally, it enables us not only to ascertain the separate function of each kidney, but it also enables the roentgenologist to ascertain, by the relation of a suspicious shadow to an opaque catheter, whether that shadow is within or outside of the renal pelvis or ureter. Furthermore, a pyelogram can be made by means of the ureter catheter, and this procedure will show the amount of dilatation of the kidney pelvis. It may be worth while, also, to say that the x-ray apparatus and the roentgenologist which and who can successfully determine the condition of a bone, for example, can by no means always obtain good results in the matter of kidney plates. Furthermore, the proper interpretation of the plate is frequently quite as essential as the technique of taking it, for it often happens that the experienced roentgenologist will locate a shadow which he who is less familiar with his art would overlook; on the other hand, there are many shadows which resemble urinary calculi to the inexperienced eye, whereas the practiced observer will at once pronounce them to be phleboliths, calcified mesenteric glands, calcified costal cartilages or extraneous fecal material.

The bilaterality of renal calculi is not infrequent. Such was the situation in 6.4% of the cases in this series, and the figures of other students of this problem are as high or higher.

At the same time, bilateral stones do not, by any means, imply a bilaterality of the symptoms.

In twenty-four of our cases the only stone, or one of several, was passed spontaneously, generally after cystoscopic examination with catheterization of the ureter. We must conclude from this that even this gentle manipulation is often all that is necessary to bring about the conditions favorable to the passage of calculi.

Where the stone was not spontaneously passed, operation was performed. Pyelotomy was the operation of choice, and was done in sixty-four instances. In thirteen others, it was combined with nephrotomy, generally partial. There were thirty-nine nephrectomies and seventeen nephrotomies, of which three were bilateral. In general, it may be said that pyelotomy is sufficient for the removal of small calculi, even though they may be multiple. Nephrotomy is necessary only when the stone is of such a size or shape as to make its extraction through the renal pelvis impossible. Nephrectomy should be reserved only for the cases wherein the kidney is badly infected, dilated, and harboring generally a very large stone or many small ones.

Our post-operative complications were variable in character and cause. Some were unavoidable; others might be ascribed to faulty judgment or technique. The list includes exacerbation of severe preëxisting infection requiring nephrectomy and post-operative hemorrhage after nephrotomy.

In view of the fact that the cases were all of the hospital class, our mortality of 3.5%, comprising five cases, is not discouraging. Two of these deaths were due to pneumonia, one to uremia, one to hemorrhage after nephrotomy, and one to gas-oxygen anaesthesia.

In five, abnormalities were found consisting of horseshoe kidney in three, and an aberrant artery with the ureter kinked over it in two. None of these abnormalities was discovered before operation, but it is worth while to record them as a reminder that one should always be on the alert for the unusual when doing kidney surgery.

Let us now turn to the results of operation for renal calculus. It is not an inspiring study, for the number of patients undergoing operation in whom subsequent examination shows the presence of one or more calculi, is appalling. It is doubtless true that the conditions which produce stone and which we do not understand are still active, but it is also true that the operation (or should I say the operator?), be it a pyelotomy or nephrotomy, does not remove all the stones in a very large number of cases. That this statement is not exaggerated is shown by the fact that out of 20 of our cases in which an x-ray was taken *during convalescence*, nine, or 45%, showed stones still remaining in the kidney. I reiterate these facts in the belief not only that they are no worse than those of other clinics, but also

that their publication may incite others to investigate and improve their own results, even as we are trying to improve ours. It is unfortunate, indeed, that the literature contains so few references to the end-results of renal calculi. The only articles of value are those of Cabot and Crabtree and of Braasch. The former observers have published a report of unique value, in that the cases were studied personally by the two men, the examination including roentgenograms and urinalysis. The statement of the patient, and in many instances that of the family physician, was taken only at its face value, for, as has been already pointed out, the absence of both subjective and objective symptoms is so common that without x-ray no definite conclusion can be drawn. In 51% of cases undergoing pyelotomy, stones were found to be present in the kidney at a subsequent time. I believe that many of these stones were those which had been overlooked at the time of operation, but there is no doubt, also, that the actual recurrences were numerous. This is a point which cannot be settled, however, for few, if any, of these cases had had an x-ray *during convalescence*, and if my study of this problem has impressed anything at all upon me, it is that this procedure is of vital importance if we are to know the facts. A positive x-ray, taken six months or a year later, cannot distinguish between a "left over" and a true recurrence.

Braasch reports more favorable end-results from the Mayo Clinic, namely, a recurrence of only 14.7% in 88 patients. But inasmuch as he does not state the particular kind of operation which was performed in these cases and does not state whether the patients were x-rayed and examined by himself or by some equally competent observer, one hesitates to accept these figures without further explanation.

While I have not attempted to look up the end-results of this series of 139 cases intensively, I have found that among the pyelotomies there is known "recurrence" of 32.8%. The same criticism applies to this figure, however, as to that of Cabot and Crabtree, for the reason that post-operative x-rays were taken in but a few instances.

If pyelotomy results so badly, one might suppose that nephrotomy, an operation which fully exposes the interior of the kidney to the eye and to the finger, would yield more gratifying results. Unfortunately, such is not the case. In the article by Cabot and Crabtree, already referred to, these writers found a recurrence of 56% after this operation, an even higher figure than that after pyelotomy. In the 139 cases here reported stones were subsequently found in the kidney in 30.3% after nephrotomy. It seems to me, therefore, that we are facing a serious problem, serious because of the fact that we apparently cure so few patients, and even more serious because a subsequent operation may be, and often is, necessary, and

every surgeon knows that a second operation on a kidney may be an undertaking of the first magnitude, endangering not only the kidney, but even the patient.

Sufficient has already been said about the comparative safety of the operation of pyelotomy. Let us now turn to nephrotomy and see what it has to offer. There have been seventy nephrotomies at the Massachusetts General Hospital from 1897 to date. The patients varied in age from 11 to 64 years. There was an operative mortality of 5.7%, comprising four cases, of which two died as a result of secondary nephrectomy for hemorrhage, and one died from streptococcus septicemia. The cause of death in the fourth case was not stated. Secondary hemorrhage, requiring nephrectomy in three instances, occurred in eleven, or 15.7%. In seven the bleeding ceased spontaneously, and the patients recovered; in one the wound was successfully packed. The recurrent or overlooked stones in these seventy cases were found to be 52.9%, a figure which compares closely with that of Cabot and Crabtree. This fact, together with the ever-present danger of post-operative hemorrhage, should leave no doubt in anyone's mind that the operation is not always productive of success. The writer knows of no more difficult decision to make than that which involves interference with hemorrhage in a nephrectomized kidney. It is a situation which calls for the best surgical skill.

In cases of massive hemorrhage, with all the well-known symptoms, one has no doubt as to the necessity of interference to save life. In cases of less severe hemorrhage, one's surgical judgment is sorely tried. One hesitates to pack a kidney or to remove it, unless it is absolutely necessary; on the other hand, he who hesitates may find himself operating at the eleventh hour and in frantic haste, on an exsanguinated patient, often with lethal results.

After reviewing the situation, whether from the point of view of pyelotomy or of nephrotomy, one may well ask why it is that the removal of stones from so comparatively small a cavity as the renal pelvis is not always possible. There are many reasons. In the first place, the renal pelvis is a very complex cavity with various ramifications in the form of calyces from its main portion. These calyces may, and often do, branch off at right or acute angles from the plane of the pelvis itself, so that their very existence is not demonstrable. On the other hand, a probe may fail to find the orifice of a calyx, either because of its minute size or on account of its location. In either event, the stone within is undetected. In the second place, one sees a very definite shadow of what is apparently one stone in the kidney. He explores the pelvis, finds and removes one stone which resembles the x-ray shadow both in size and shape, and which shows no facets or evidence of fracture, and

fails to explore the pelvis for other stones which may be there. Thirdly, the manipulation required to remove one stone, even though gently performed with a blunt instrument, generally causes more or less hemorrhage from the pelvic mucosa. The blood clots around any other stone present, and the layer of fibrin so deposited, effectively prevent its detection by a metal instrument. Fourthly, it occasionally happens that the stone or stones may slip unobserved into a dilated ureter, or even into the perirenal tissues during the operation.

These are the chief causes for overlooking stones in a kidney, and I believe the shadows of these stones are regarded as actual recurrences far too frequently. On the other hand, there is no doubt that stones do actually recur, for reasons which are as yet obscure. As an instance of this, I may say that I have a patient, a man of about 65, who has been passing stones from both kidneys for 28 years. X-ray will show a shadow first in one kidney, then in the other.

The question now arises, what can be done to improve this unfortunate situation? In the first place, careful and accurate preoperative study is absolutely essential. One should never jump at conclusions. The most definite stone shadow may be a calcified gland or a gallstone, even though the urine contains pus and blood. Not only must the exact location of the stone in the kidney be determined, but every effort should be made to find out whether there is more than one stone. An x-ray should be taken as close as possible to the time of operation, preferably the same day, the reason being that a stone may travel back and forth between the renal pelvis and the lower end of the ureter without producing symptoms. It is awkward to operate for a stone in the kidney when the stone is lying in the far end of the ureter. A pyelogram will have indicated the degree of dilatation of the pelvis of the calyx. In the presence of much dilatation and after trying vainly to find or to remove a stone, the opening of a thin-walled calyx with a blunt instrument will do but little harm and may quickly produce the stone.

Secondly, the utmost care should be taken to avoid bleeding, for the reason already indicated.

Thirdly, the old-fashioned method of needling the kidney, especially at the suspected location of the stone, is often helpful. I find the rounded end of an ordinary probe a most efficient and comparatively harmless implement for this purpose. Having located the stone in this way, the probe is held in position and a blunt clamp slid down along it, gradually burrowing a channel for itself as it proceeds. It is astonishing how large an opening can thus be made in the wall of a dilated calyx.

Fourthly, a method suggested by Caulk, of St. Louis, has been useful in one or two in-

stances. It consists merely in gently tapping the kidney, the idea being to shake the stone out of a calyx into the pelvic cavity.

Fifthly, great care should be used in extracting a stone, as it may easily break and leave fragments behind as nuclei for recurrences. In the event of the fracture of a stone, it is recommended that the pelvic cavity and calyces be thoroughly and somewhat forcibly irrigated with hot salt solution, with a view to dislodging fragments.

Sixthly, I believe that the fluoroscope used in conjunction with the operation by a trained observer, offers great possibilities of success. It is already used in several clinics in this country, and I believe the time will come, if indeed it is not already here, when the fluoroscope will be considered essential to the proper performance of pyelotomy or nephrotomy. There are certain points in the technique of this particular kind of fluoroscopy which need not be gone into here, but I will refer those who are interested, to the article by Braasch and Carman (*Mayo Clinics*, 1919, xi). I have now employed it successfully in a few cases, but have found that it is not without its drawbacks. While I believe that its success depends almost entirely on the skill of the observer, I also believe that small stones may easily be overlooked even by the most expert.

In short, my experience with renal stone and my study of the records of the hospital and of the literature, convince me that there are cases in which it is not humanly possible to remove all stones from the kidney. But I feel strongly that the number of failures will be reduced in direct proportion to the care which is taken before and during operation.

If I may quote from a recent article on the subject, I said "Lest the surgeon, having in mind the somewhat disheartening data here presented, might hesitate to advise or to perform operation for the removal of renal calculi, I wish to state emphatically that such a course will almost inevitably be a source of regret to the patient, if not to the surgeon."

"In spite of the high percentage of 'recurrence' here reported, the patient should not be encouraged to carry about with him, until necessity forces the issue, a stone which is surely but insidiously doing serious damage to his kidney. In most instances a pyelotomy will suffice to remove the stone, and we have pointed out the small risk attending this procedure. Even though nephrotomy is deemed necessary, the mortality is not terrifying, nor should the chance of secondary hemorrhage act as a deterrent. In other words, it is safer in the long run to remove a stone than to allow it to remain in the kidney."

DISCUSSION OF DR. BARNEY'S PAPER ON RECURRENT RENAL CALCULI.

DR. ARTHUR L. CHUTE, Boston: It seems to me the discussion of Dr. Barney's paper naturally re-

solves itself into two parts, first, concerning the cases in which stones have been left in a kidney at time of operation, and second, concerning those cases in which following operation there has been a recurrence of stone. We must recognize that though most stones are easily shown by a good radiograph there are some that are not: these are usually the uric acid stones. In two or more instances where I have removed stones that did not show in radiographs they have been found on examination to be uric acid and I have further found that while these stones would give a fair shadow when put on a plate and radiographed, they would give only a very faint outline if put in a finger cot filled with water and then radiographed. It has seemed to me more than possible that in certain cases where we remove by pyelotomy a stone firmly caught in the pelvic outlet, (a stone in this position would not be covered with fluid and would be detectable with the x-ray) it would be perfectly possible to have another uric acid stone behind it, in the pelvis, or in a calyx that was dilated and filled with urine, and that such a stone would not be shown in the x-ray because surrounded with fluid, and ordinarily would not be looked for if the evident stone was removed by pyelotomy. Such a stone as this would be overlooked almost surely unless one explored the kidney pelvis through the pyelotomy wound and this is not easy to do with the finger without tearing the tissues: the introduction of an instrument to explore the calyces from the pelvis is not as satisfactory as the use of the finger.

Barney referred to one stone overlapping another so that the radiograph gives but one shadow. Within a year I have been misled by this condition and only the use of the x-ray shortly after operation allowed me to correct my mistake and remove the stone I had left; in this instance my first operation was pyelolithotomy; my second, nephro-lithotomy.

Somewhat similar to the foregoing are the stones that come about through the breaking off of a bit, often a very small bit, of a branched stone during its removal; its retention in the kidney leads to the formation of another stone through the addition of lime salts to this nucleus.

Most of the instances of true recurrence of a stone depend upon the fact that a kidney remains infected and that there is besides this a certain puddling of urine in dilated calyces or in atonic distended kidney pelves. The infection furnishes the protein substance upon which the deposit of mineral begins; the stagnation due to puddling of urine greatly favors this precipitation. In my opinion the overlooking of stones at the time of operation and the prevention of their reformation can largely be brought about by the same manoeuvre, that is, the more general use of nephro-lithotomy rather than pyelo-nephrotomy. Especially do I believe that this should be done when the pelvis or calyces are dilated and when the kidney is infected. This operation allows the careful exploration of the calyces and kidney pelvis with the finger; the best way to avoid overlooking a stone. It also allows adequate drainage of the kidney by means of a tube brought out through the loin; this facilitates the clearing up of infection and allows irregular cavities to contract, affording, I believe, our best protection against the reformation of renal stones. I believe that as a rule pyelotomy should be restricted to the cases which present a small stone in a non-infected kidney.

The use of the fluoroscope to examine the kidney at the time of operation has, I believe, a rather limited field. A considerable proportion of kidneys are not sufficiently movable to make this possible. I do believe that the use of the x-ray during convalescence within a relatively few days after operation is a very desirable thing. It is possible

if a stone is found at this time, as in the case I have reported, to reopen the wound in the loin and to reexplore the kidney with a good deal more ease than if one waits until the incision is solidly healed.

DR. LINCOLN DAVIS, Boston: I think that Dr. Barney's paper is intensely interesting and it is now up to the surgeons who operate on stones in the kidney to have x-rays taken before the patients leave the hospital to see whether stones have been overlooked. The problem of not overlooking them is a difficult one. There is one thing I want to mention, that is, in regard to the incision. I was always brought up to do a pyelotomy on the posterior wall of the pelvis away from the vessels, by turning the kidney forwards, but I have often found it very difficult, if not impossible, to do this; the kidney will not displace forwards unless it is mobilized to such an extent as to permit of absolute withdrawal from out of the wound. Lately I have done a number of operations for kidney stone by opening the pelvis along its inferior border, and have found it much easier than opening on the posterior wall or the anterior wall. You can readily put your finger into such a wound and make an adequate exploration of the kidney pelvis. I think that it is a good location for exploration of the pelvis, and also a good location for drainage of the pelvis. I don't see why you can't drain a septic kidney with stone through the pelvis opened in this way as well as you can through a nephrostomy.

DR. SAMUEL S. DEARBORN, Nashua: I would like to ask Dr. Barney whether he closes the operative wound in the pelvis of the kidney or leaves it open, and whether a suture may act as nucleus for subsequent stone formation?

DR. J. DELLINGER BARNEY, Boston: I think we have got some distance to go before the perfection of our technique in the use of the fluoroscope. I think that what Dr. Chute said is true. Where the kidney cannot be delivered out of the wound in a fat patient the fluoroscope is handicapped, but in favorable cases it is of distinct value. I think the observer must be specially trained in that line of work. It is one thing to look at a stomach full of bismuth and another thing to look at a kidney with a stone the size of a grain of wheat in it; and that is the thing you want to get out.

In regard to what Dr. Davis said, there are many instances where the pelvis is intrarenal, where it is all the same size until it enters the hilus of the kidney, but where it is big enough I think the introduction of the finger is a good procedure and offers more chance for delivery of the stone.

In regard to Dr. Dearborn's question, we always suture the pelvis where possible. It may not always be expedient, owing to the depth of the kidney in the wound, but as a rule a suture is placed in the ureter and does not pierce the mucosa; it simply goes through the external tissues. I don't know whether it could act as a cause for the recurrence of stone. The suture we use is OO chronic gut.

their accessibility are amenable to external radiation. This increased interest of the medical profession in radium treatment has produced two definite results. First, the larger institutions devoted to the care of diseases have, by endowments or otherwise, been enabled to acquire large amounts of radium, and it is to these institutions, as leaders in the work, that we must look for inspiration and scientific guidance. Secondly, a scattered few individuals or groups of individuals, chiefly surgeons or roentgenologists, have acquired smaller amounts of radium, and have developed smaller centers, usually at some distance from the larger institutions.

I will grant you, that were it possible, it might be advisable to treat all radium cases at the larger institutions, but these centers are already greatly overburdened with the influx of suffering patients, and to many, the journey from home is inconvenient and sometimes prohibitive.

Belonging as I do to the second classification of workers, I maintain that there is a definite and real field of usefulness for the smaller amounts of radium in the smaller centers.

I realize it is impossible for me to indicate end-results in certain types of cancer that I have treated, and will not attempt to do so at this early date, but will indicate the conditions as they appear at present. On account of the length of time allowed for reading this paper, the description of symptoms, technique of application, and history, will be very sketchy and brief, for it is my purpose to indicate a few of the more outstanding results and impressions, without taking up your time with analytical discussions.

The largest group comprises the various epitheliomas about the skin of the face and head, and these have responded wonderfully. All except the larger and deeper lesions have disappeared in four to six weeks, though one large epithelioma of the ear, involving the whole upper half, is taking over three months. Cancers about the face are frequently very disfiguring and in some locations the surgical removal would add to the deformity. I may add that these patients are extremely grateful for the cosmetic improvement.

Eight cases of menorrhagia have been treated, seven with perfect success after one treatment, and one that has required a second application. These have been treated from two and one half to eight hours each with 50 m.g. of radium. It should always be borne in mind that intrauterine treatment should never be given where there is an associated acute or chronic pelvic inflammatory condition.

I have been very much pleased with the good results following the treatment of tubercular glands, and have found marked improvement in all but one case. In this instance

EXPERIENCES WITH THE USE OF RADIUM.

BY GEORGE C. WILKINS, M.D., F.A.C.S., MANCHESTER, N. H.

DURING the past few years there has been an increasing interest manifested in the use of radium as a therapeutic measure, particularly in the treatment of cancer and in various superficial pathological conditions that by

caseation had evidently commenced prior to my treatment, and when this has occurred one may expect no benefit from the treatment. In the case of an ex-soldier who had undergone three extensive operations on both sides of his neck for broken-down tubercular glands, I was privileged to treat the subsequent glands which developed on both sides of his neck and in one axilla. These lymph nodes, which developed rapidly, were treated within a few weeks after they became palpable, some having reached nearly the size of an English walnut. Within three weeks after external radiation, there was noticeable diminution in the size of the nodes, and this retrogression continued until there could only be felt a few very small, hard nodules. Last year over a dozen glands were thus treated successfully in this single individual. Where there are chronic sinuses remaining after the surgical removal or curettage of tubercular lymph nodes, I have found that radium applied over the area, combined with direct radiation in the sinus itself, materially aids in the rapidity of healing.

In treating carcinoma of the rectum, I have found it possible to successfully introduce radium needles directly into the growth under the direction of the eye, through an electrically lighted proctoscope, the needles being introduced with a slender but strong carrier. This method of introduction is extremely valuable, particularly in the annular type, as excellent cross-firing can be obtained between the needles and a tube retained within the orifice of the stricture.

I have treated only one case of exophthalmic goitre. This young woman was a normal-school student, and for two seasons had been unable to pursue her studies more than three months. She had been under the care of two physicians, and finally consulted an internist who treated her by rest in bed and some medication for three months. At the end of this time there was less tremor and a reduction in the pulse rate from 120 to 90, but immediately resumed its former rapidity after she had been up and about a few days. On July 14 and 23, 1920, I gave her two treatments of three hours each with 50 m.g. of radium and a similar treatment on September 10. October 20th, when she was next examined, her pulse was running between 80 and 85, there was less sweating, practically no tremor in the hands and tongue, and she was feeling stronger. She had three subsequent treatments which resulted in a marked diminution in the size of both lobes, so that the only visible enlargement is in the isthmus. The pulse still remains close to normal and she has been able to remain in school through the past year. This is only one case, but it is an indication of what can be accomplished.

Over eight months ago I removed a mixed cell sarcoma from the orbit of a woman 71

years old. Because of a benign growth the eye had been removed from this socket 35 years before. At the time of my operation there was a bulging, pulsating mass. Ten days after the removal of the tumor, I began giving radium treatments within the orbit. Healing of the orbital cavity was delayed considerably by the formation of sloughs caused by radiation. There is no indication at the present time of any recurrence. Without post-operative radiation an early recurrence would have been expected in this case.

I have under treatment at the present time one case of melano-epithelioma of the face. When this man was referred to me, he had an elevated growth with redundant edges, measuring a little more than 3 c.m. in diameter. Cross-firing was easily obtained in this case by needles buried deeply and a tube of radium strapped to the surface of the growth with suitable screening. Since April 21st of this year, he has had three eight-hour treatments, and the tumor at the present time is 1.5 c.m. in diameter and is level with the surface of the skin, except at the very upper edge. Eventually, however, I expect the usual result in this case.

A few cases of recurrent carcinoma after amputation of the breast have been treated, and a larger number have been refused on account of the extent of the recurrence. In all but one case there has been at least temporary diminution in the size of the recurrent masses, and I have found this to be particularly prompt when the recurrence was in the skin, and not too firmly adherent to the chest wall. Where the external mass had developed from a recurrence beginning in the chest wall between the ribs there has been no retrogression in the size of the mass. The palpable lymph nodes usually begin to decrease within three weeks after extensive radiation. I believe radium treatment accomplishes all that could be expected of secondary operation. An elderly woman was referred to me who had had scirrhous cancer of the breast for five years. There was a mass 8 c.m. in diameter firmly adherent to the chest wall with an ulcerated area in its depressed center 3 c.m. in diameter. Because of her age and the local extension, I gave her treatment by external radiation over the entire surrounding areas, including the axilla and supra-clavicular regions, as well as deeper radiation in the region of the ulcer with buried needles. Much to my surprise, three weeks after this treatment the mass was movable on the chest wall. Treatment was repeated one month after the first series, and this second series caused considerable local and general reaction. Three months after this last treatment, the mass was freely movable, the ulceration had become entirely healed, and three weeks later, after a preliminary radiation, and with

gas anaesthesia, the mass, with underlying muscle and surrounding tissues, was removed. Subsequent to operation she has had x-ray treatment. She is well and will be watched carefully for signs of recurrence. The pathological description is significant in this case, because the pathologist states that the sections show an enormous increase in the connective tissues in both breast and muscle, and the masses of cells are very narrow and small with no mitotic figures seen. The site of the former ulceration was covered with a thin skin and the tissue beneath was very firm.

In cancer in and about the mouth the immediate results have varied, and while epitheliomas arising from the skin margin of the lip respond rapidly to treatment, the growths developing in the tongue, floor of mouth, and about the alveolar processes, are difficult to treat and the results are less satisfactory. Better results can be obtained by using either the soldering iron or electric desiccation first, followed later by radium. I have found the steel radium needles very useful in the mouth, and cross-firing can be obtained by suturing a screened tube of radium to the mucous membrane near the needles.

One patient with a fibroid uterus about the size of a three and one-half months' pregnancy, who was flowing excessively, was given one treatment. Flowing ceased in ten days, and in three months the uterus had diminished one-half in size and at five months is only slightly larger than a normal uterus.

The second largest group treated, comprising fifteen cases of uterine cancer, have been the most interesting of all. These can be divided into four subdivisions: (1) carcinoma of the cervix, operable, 2 cases; (2) carcinoma of the cervix, inoperable, 7 cases; (3) recurrent carcinoma after pan hysterectomy, 4 cases; (4) adeno-carcinoma of the uterine fundus, 2 cases.

One patient with carcinoma of the fundus was given post-operative radiation in the vaginal vault. In this case the carcinoma was not discovered until after operation as it was a complication associated with large uterine multiple fibroids. The other was treated with radium five days prior to pan hysterectomy. Both patients are well, four and seven months respectively, after operation.

The patients with recurrences after pan-hysterectomy varied in their response to radium treatment. The last patient began treatment in June and there has been no improvement. One began treatment in July, 1920, and was relieved of all bleeding at once. was relieved of pain for five months and died one year after beginning treatment. One with a recurrence five months after pan hysterectomy, and with the vagina so filled with growth that the index finger could not be inserted its full length, was treated in August, 1920.

At this time she had little pain, but urinated every one-half to one hour. Four weeks after treatment she could hold urine four hours and much of the growth had disappeared from the vaginal surface. This improvement continued for four months, when I gave her a second series of treatments from which she suffered a tremendous reaction. Recovering from this in two weeks she was quite well for three months, then rapidly grew worse and died eight months after beginning radium treatment and thirteen months after operation.

The first uterine cancer that I was privileged to treat was in a recurrence after pan hysterectomy in a woman 62 years of age. Her operation was performed three years previously and for nine months prior to my treatment with radium she has been flowing continuously, was having pain most of the time, had practically given up her housework, and was in bed much of the time. On examination there was an ulceration with ragged, bleeding edges in the vault of the vagina. With this as a center, there was a surrounding umbrella-like mass of tissue about 2.5 cm. in thickness and extending in all directions and involving the upper vaginal mucous membrane. Treatments were instituted July 1, 1920, and she has had five subsequent treatments. There has been no flowing since the first treatment. She was relieved of pain within a short time, and for ten months after the first treatment was able to do the major portion of her housework, and care for her invalid husband. There was very little loss of weight and the patient has been quite happy and contented during the extra year which I think was added to her life. She is still able to be out of bed part of the time, but is now losing weight and strength.

There were seven cases of inoperable carcinoma of the cervix, one of which might have been considered operable had it not been for the marked obesity of the patient. There were two border-line cases, both of whom have gained weight, strength, and have been free from any pain or vaginal discharge.

There were four advanced cases, all having considerable pain and all were relieved of bleeding and vaginal discharge. Three were relieved of pain for a short time only, and in one case there was no relief of pain. One of these patients with inoperable carcinoma of the cervix when first examined had been flowing for nine months, her red count was 2,500,000 and the haemoglobin 40%. The vault of the vagina was filled with a foul-smelling, cauliflower mass, which bled at the slightest touch. That was on December 1, 1920. Three days after treatment with radium the flow stopped and has not returned. Treatment was repeated January, 1921. In May, she had gained thirty pounds in weight, had no pain, color was good, and had gone to work in the mill where she has remained since that time. The

first of this month, ten months after beginning treatment, she is holding her weight, her color is excellent, she has no pain, the uterus is of normal size, cervix of normal size and nearly normal shape, and the uterus is fairly movable. There has been no change in the local condition in the past six months.

There were two patients with carcinoma of the cervix which were considered operable by myself and another member of the hospital staff, after they had been subjected to preliminary radium treatments. The first patient, Mrs. Y, gave a history of bloody vaginal discharge for two months. There was a soft, fairly smooth mass about the size of a tennis ball growing from the cervix and involving the entire circumference of the cervix. This mass bled very easily and there was much dirty reddish-gray discharge. The first treatment was 2400 m.g.h. with the radium imbedded within the tumor mass. Four weeks later there remained a mass less than the size of an English walnut. This mass and the cervix were given 1200 m.g.h. treatment, and as the uterus was freely movable, operation was decided upon when the cervix had become smooth, and this was accordingly carried out three weeks later by my colleague. He performed a very thorough Weirtheim operation from which the patient made a good recovery, leaving the hospital in three weeks. The pelvis is free from all signs of growth, and her bowel and urinary functions are normal, but she has suffered from prostration and neuritis in both legs, which has lasted five months. After examining the uterus the pathologist reports as follows:

"The parametrium is not involved. The lesion extends up the cervical canal to the internal os. At the internal os it is just beneath the lining and as it extends down to external os it involves the tissue more and more.

The cells are small and in small clumps, more like an alveolar type, the stroma increased. No mitotic figures are seen. In other words, the cells do not look healthy. On the end of the cervix the cells are larger and an occasional mitotic figure is seen."

It is needless to say that if operation had not been decided upon, the cervical canal and cervix itself would have received much heavier radiation which would have further destroyed the nests which remained. This patient would have been in better condition today if we had continued with the radium treatments, but whether or not the final result would have been as satisfactory is a debatable question.

The other patient who was considered operable, Mrs. X., was 52 years of age and had had a slight bloody discharge for eight months. The cervix was fairly movable and not much enlarged. Its tissue was unusually hard and

there was an ulcerated area about the cervix. She was given three 24-hour treatments, with 50 m.g. of radium in the cervical canal. Ten days later she was operated upon by the Weirtheim method. There was an induration extending 1 cm. to the right of the cervix, and there were two enlarged glands removed from the right iliac vessels near the brim of the pelvis. She made a good, immediate recovery, but her convalescence was stormy and protracted. The pathologist's report in this case was as follows:

"Sections show an improvement beyond comprehension. There is no evidence of the lesion in the parametrium. The lumen of the cervix is covered with a pyogenic membrane beneath which is young connective tissue and there are only left a very few scattered areas of epithelial nests. There is an occasional epithelial collection in the vaginal tissue. These epithelial cells, however, are small and not a single mitotic figure is seen. I hesitate to say it but it looks as though the lesion was completely removed."

I realize the number of cases in this report is too small to make the findings of any great value, but in a field of treatment which has been of comparative recent development the combined observations of many workers cannot help teaching important lessons.

From the above report may we not conclude that the pathological tissues which had been previously subjected to radium treatments, definitely tell the story of the destructive action which has taken place, and with the clinical evidence, demonstrates that a lethal injury can be delivered to cancer cells by the smaller amounts of radium element, providing the screening and period of application is such that a maximum degree of efficiency is obtained.

From the mass of evidence being presented by many eminent radiologists it would appear that only in the very earliest development of cancer of the uterine cervix can radical operation offer longer life than radium treatments, and with the latter method the high immediate mortality is eliminated.

Radium is the treatment of choice in superficial epitheliomata, in the treatment of menorrhagia, and in small fibroids that are not pedunculated. Its use before operation in breast cancer, combined with x-ray treatment after operation, would diminish the number of recurrences. I would also urge the more extensive use of radium in the treatment of tubercular lymph nodes.

The relief from pain, foul discharges, excessive flowing, and the general physical improvement obtained in inoperable cancer of the uterine cervix alone, justifies a more extensive use of radium.

DISCUSSION OF PAPER BY DR. G. C. WILKINS.

DR. CHANNING C. SIMMONS, Boston: Radium is available to the public for the treatment of disease in two ways: first, institutions, in amounts larger than the average individual can afford to hold and which have suitable apparatus for obtaining emanations, and second, physicians who have smaller amounts of the element, usually from 10 to 50 m.g. in applicators of varying size and shape. A third source may be mentioned, the so-called radium banks, companies owning radium which sell or rent tubes of emanation to physicians desiring to use them. This seems to me a somewhat questionable procedure, as it places a very powerful element in the hands of physicians who may be ignorant of its dangers. I feel that radium should only be employed by physicians fully conversant with its use.

The institution and the individual physician each have a distinct field in the treatment of disease. The average case of epidermoid cancer of the skin or menorrhagia can be as well treated by the physician as by the institution. Other groups of cases as the leukaemias, and certain cases of cancer of the uterus where large doses are required, or cases where special forms of apparatus, as "seeds," are indicated, are better treated at the institution.

Radium is valuable in three ways. As a curative agent, as a palliative agent, and as a prophylactic used in conjunction with operation, and the physician should have what he expects to accomplish clearly in mind before beginning treatment. X-ray treatment as a pre- or post-operative measure is in most instances to be preferred to radium.

To take up the classes of cases Dr. Wilkins has mentioned more in detail. We have had no experience in the treatment of tuberculous glands or goitre at the Huntington Hospital.

Skin cancer can be as well treated by a physician with a comparatively small amount of radium as at an institution, in all but exceptional cases, and the results are good. In cancer of the ear or back of the hand much better results can be obtained by excision.

In the treatment of menorrhagia the radium has two distinct actions, the first, on the uterine mucosa, and secondarily, on the ovaries. In young women it is necessary to exercise great care as there is always the possibility of sterilization.

In inoperable or recurrent cancer of the breast x-rays are usually to be preferred to radium unless the latter is used as seeds in individual recurrent nodules. The results are surprisingly good if it is remembered that a permanent cure is not to be expected. Post-operative x-ray treatment after radical removal of a cancer of the breast is apparently of distinct benefit. If preoperative x-ray treatment is given the wounds heal slowly and extensive sepsis is not unusual.

Cancer of the buccal mucosa if seen early should be treated by operation performed in two stages, the local growth removed at the first operation and radical neck dissection performed about ten days later. In more advanced cases or in elderly people local excision with the cautery followed by local radium treatment if necessary, and x-ray treatment of the lymphatics of the neck, is the treatment of choice. In the more advanced cases we are using radium at the Huntington Hospital by the seed implantation method which gives better results and is followed by less reaction than when the application is made externally. Cancer of the lip, we believe, should be treated surgically.

Certain cases of cancer of the rectum do well under radium treatment if it is remembered that the treatment is only palliative, and the results are better if a preliminary colostomy has been performed. If the radium is not applied accurately in needles or as seeds, distressing tenesmus is apt to result.

Inoperable cancer of the cervix reacts particularly well to radium and some of the results are remarkable considering the extent of the disease. Recurrent cases, when the recurrence is in the vault of the vagina, do particularly well as in these cases the lymphatic channels are closed. If there is marked infiltration of the broad ligaments, however, palliation is all that can be expected. It is the custom at the Huntington Hospital to give one heavy treatment if there is any hope of cure. In the advanced cases it is necessary to make the treatments lighter as the reaction is more severe. We are still advising radical operation in suitable early cases.

Osteogenic sarcoma is apparently little affected by radium, but in the so-called central giant-cell sarcoma of the bone, curetting, followed by radium treatment, gives good results. Certain sarcomata of the soft parts react well to radium treatment while others do not. It must be remembered that the action of x-rays and radium on tissues of the lymphoid type is entirely different from their action on tumors of epithelial origin.

DR. GEORGE C. WILKINS, Manchester, N. H.: I have nothing particular to add.

Address.

THE PRACTICE OF MEDICINE IN MASSACHUSETTS. A DISCUSSION OF THE LAW GOVERNING THE REGISTRATION OF PHYSICIANS.*

BY HON. BENJAMIN LORING YOUNG.

Speaker of the House of Representatives.

EVERY physician knows that the practice of medicine in Massachusetts is restricted and regulated by law. But how many are really familiar with the history and present application of the registration statute, and how many can answer accurately the following questions: Can a chiropractor be licensed, either as a physician or under a separate registration board, as in certain other states? Is osteopathy an independent profession, or a branch of the science of medicine? May a duly registered physician be deprived of the right to practice, either by the courts or by the board of registration? The purpose of this paper is to answer such questions and to describe, strictly from a legal standpoint, that part of the law of Massachusetts which regulates the practice of medicine.

Perhaps a brief explanation is needed as to the meaning of the word, "law." The common law of England, as developed and modified in this country, is the basis of the jurisprudence of Massachusetts. This common law, so far as it affects particular subjects, has, from time to time, been codified and enacted by the Legislature in statutory form, but, in the main, it remains uncoded and is disclosed, or declared, merely in the decisions of the Supreme Judicial

* An address delivered at a meeting of the Essex North Medical Society, on November 2, 1921.

Court. Important court decisions have a far-reaching effect upon the development of the law and often become judicial precedents. The basic common law is, of course, subject to amendment and addition by the Legislature, through the passage of statutes. For example, there is no common law governing the registration of physicians. On this subject, we must look to the statutes passed by the Legislature,—the law-making body of the Commonwealth. The statutes of Massachusetts of general application have recently been consolidated in two volumes, known as the General Laws. This consolidation took effect on January 1, 1921, and in this paper will be referred to and cited by its title. We must also consult the decisions of the Supreme Judicial Court, because while the Legislature enacts the statutes, the Court must, in the last analysis, construe and interpret them and, in doubtful cases, determine upon their meaning, scope, and legal effect. We should bear these facts in mind throughout our discussion of statutes and decisions, and also the fact that this paper is intended to be an impartial statement of the law as it is, and not as some physicians think it ought to be. Furthermore, it should be remembered that the writer is a lawyer and legislator, not a physician, and that he makes no claims to medical knowledge.

REGISTRATION ACT OF 1894.

For a long period before 1894, Massachusetts had no statute for the registration of physicians. Apparently any person could practise medicine without examination or license. Governor Frederic T. Greenhalge, in his inaugural address of that year, spoke to the Legislature as follows:

"I ask you also to consider the expediency of requiring that practitioners of medicine be registered, in somewhat the same manner as pharmacists are now registered. In every state of the Union, except five, such a system of registration has been established, and it cannot fail to protect the public, and at the same time help to maintain a high standard among medical practitioners."

This recommendation led to the passage of Chapter 458 of the Acts of 1894, which provided for a board of seven physicians, to be appointed by the Governor. The requirements as to the personnel of the board have remained practically unchanged. The members must be graduates of a legally chartered medical college, or university, having the power to confer degrees in medicine, and must have been for ten years actively engaged in practice. No member

than three members thereof shall at one time be members of any one chartered state medical society."

The law with regard to the appointment and organization of the board is found in the General Laws as Chapter 13, Sections 10 and 11.

The balance of the original statute, as amended, is now included in Chapter 112 of the General Laws, Sections 2 to 12. These sections are too long to quote in full. Section 2 provides that applicants for registration must be twenty-one years old and of good moral character, and have received the degree of Doctor of Medicine, or its equivalent, from a legally chartered medical school having the power to confer degrees and giving a full four years' course of not less than thirty-six weeks in each year. The requirement of a four years' course was added in 1917, and does not apply to applicants who matriculated before March 10 of that year in a medical school giving a shorter course of study, provided it had the power to confer degrees.

An amendment adopted in 1917, and now found in Section 8 of said Chapter 112, requires each physician to present for record his certificate of registration with the clerk of the city or town where he has his office or usual place of business. The clerk must keep an original record of this certificate open to public inspection, and forward a duplicate thereof to the board.

The board may, after a hearing, suspend or revoke the registration of any physician found to be insane or guilty of deceit, malpractice, gross misconduct in the practice of his profession, violation of the law, and other improper acts enumerated in the statute (Chapter 112, Sections 2 and 61 to 65). The Supreme Judicial Court may enter a decree revising or reversing the decision of the Board, "if it appears that the decision was clearly wrong." Thus the Board itself is charged with the responsibility of maintaining ethical as well as intellectual standards in the medical profession.

The examinations are to be of scientific and practical character, and "shall include the subjects of anatomy, surgery, physiology, pathology, obstetrics, gynaecology, and practice of medicine and hygiene." "Psychiatry" was added to this list of required subjects by the Legislature of 1921. Another amendment in 1921 authorized the Board to employ expert assistance in conducting hospital and laboratory tests.

The teeth of the statute are found in Section 6 of said Chapter 112, which provides penalties of fine and imprisonment for any person who, without being registered,

"holds himself out as a practitioner of medicine or practices or attempts to practice medicine in any of its branches."

"shall belong to the faculty of any medical college, or university, and not more

APPLICATION OF THE STATUTE TO OSTEOPATHY AND OTHER SPECIAL METHODS OF HEALING.

It is provided in Section 7 of said Chapter that the law shall not be held to discriminate against any particular school or system of medicine; nor to apply to a commissioned medical officer of the United States in the performance of his duty; to an interne or medical officer with a limited registration as such under Section 9 of said Chapter—that section being an amendment passed in 1920; to physicians of other states under certain conditions;

“nor to registered pharmacists in prescribing gratuitously, clairvoyants or persons practising hypnotism, magnetic healing, mind cure, massage, Christian Science, or cosmopathic method of healing, if they do not violate any provision of the preceding section.”

This group of exceptions did not originally include osteopaths. They were added by Chapter 467 of the Acts of 1901, under the name of osteopathists. In 1909, the Legislature passed another new statute, Chapter 526, entitled, “An Act relative to the practice of osteopathy.” That Act allowed certain persons who were practising osteopathy before January 1, 1909, to be registered as osteopaths, provided they secured such registration before September 30 of that year. Section 3 thereof provided that

“Persons registered hereunder (namely, as osteopaths) shall not be permitted to prescribe or administer drugs for internal use, or to perform major operations in surgery, or to engage in the practice of obstetrics, or to hold themselves out, by virtue of such registration, as and for other than osteopaths.”

Except as might be inconsistent with the provisions of that Act, the term “osteopathy” was declared to have the same legal construction and meaning as the term “medicine.” These provisions now appear in the General Laws, Chapter 112, Sections 10 and 11.

The result of the statute of 1909 was to allow certain osteopaths already in practice to obtain a kind of limited registration. An osteopath so registered may not legally furnish a death certificate required by law to be furnished by a physician. (Opinion of Attorney-General Henry C. Attwill, 4 Op. A.G. 407, 1915.) Except for this temporary and limited registration, the law regards osteopathy as included in the practice of medicine. Osteopathy is not prohibited, but it is not, except as above stated, permitted under any special license. All osteopaths admitted to practice after 1909 must be fully registered physicians, taking the same ex-

amination, subject to the same law and standing on an equal footing with all other members of the medical profession.

It is unnecessary to recite in detail all the amendments which have been made to the law from 1894 to date. Whoever wishes to study the development of the law will find that amendments were adopted in 1896, 1897, 1901, 1909, 1913, 1915, 1917, 1918, 1919, 1920 and 1921, all of which, save the acts of the current year, have now been consolidated in the General Laws.

DECISIONS OF THE SUPREME JUDICIAL COURT.

To obtain a complete understanding of the law, we must be familiar with the several decisions by which the Supreme Judicial Court has declared its legal meaning and effect. Questions which may seem obvious to many have, nevertheless, been taken to the court for final decision. It should be remembered that all of these cases but one were criminal prosecutions, the defendant having been found guilty in the trial court. Desiring to escape punishment, the defendant then appealed the case to the highest court, claiming that his particular acts were not within the scope of the statute, and raising various questions of law. The decisions are herein referred to in chronological order rather than by specific subjects. The language of the Court is quoted in some of the more important cases:

In *Commonwealth v. St. Pierre*, 175 Mass. 48 (1899), it was decided that if a person held himself out as an eye specialist, he held himself out as a physician within the meaning of the statute.

In *Commonwealth v. Porn*, which was before the Court on two occasions, 195 Mass. 443 (1907), and 196 Mass. 326 (1907), it was held that a midwife could properly be convicted for violation of the statute. This case came before the Court on an agreed statement of facts. The Court ruled that whether or not these facts showed that the defendant was engaged in the practice of medicine was a question of law to be decided by the Court, and that the opinions of experts on this question could not be introduced as evidence. The Court held as law that, “obstetrics is a branch of the practice of medicine.” The Court also decided the statute to be constitutional, and said:

“The maintenance of a high standard of professional qualifications for physicians is of vital concern to the public health, and reasonable regulations to this end do not contravene any provision of the State or Federal Constitution.”

In *Commonwealth v. Jewelle*, 199 Mass. 558 (1908), the defendant used various so-called remedies described as “vitalizer,” electric or ray baths, and “stomach wash.” He claimed that if he did not prescribe or deal out a substance to be used as medicine, he could not be

found guilty under the statute. The Court, over-ruling this argument, said:

"It would be too narrow a view of the practice of medicine to say that it could not be engaged in in any case, . . . otherwise than by prescribing or dealing out a substance to be used as a remedy. The science of medicine, that is, the science which relates to the prevention, cure or alleviation of the disease, covers a broad field, and is not limited to that department of knowledge which relates to the administration of medicinal substances. It includes a knowledge, not only of the functions of the organs of the human body, but also of the diseases to which these organs are subject, and of the laws of health and the modes of living which tend to avert or overcome disease, as well as of the specific methods of treatment that are most effective in promoting cures."

This decision was obviously of far-reaching effect. If the Court had given the words, "practice of medicine," a narrow construction, limited solely to the administration of medicinal substances, the registration statute would have become an ineffective instrument. This case alone well illustrates the great power and authority of the courts under our system of government. By giving the words a broad application, the Court established a precedent which might well become a basis for a decision that all therapeutic agencies are embraced within the practice of medicine.

Now, consider again Section 7, quoted above, which exempts from the application of the statute persons practising hypnotism, mind cure and certain other methods claimed to be of therapeutic value. This exemption is, in fact, qualified by the phrase—"if they do not violate any provision of the preceding section."—that is, practice medicine without being duly registered. It was natural, however, that the members of the several healing cults named in Section 7 should claim immunity from prosecution for any acts done by them in line of their professional work. The first court decision on this point appears in *Commonwealth v. DeLon*, 219 Mass. 217 (1914). Here the defendant was a woman clairvoyant. The evidence showed that she not merely gave advice while in a trance, but also furnished medicine, for which she was paid. She claimed that she was not learned in diseases, but that while in her trance she was told by occult force, the nature of the patient's trouble and the remedy therefor. The Court considered her argument more seriously than many laymen might feel it deserved. After defining the word, "clairvoyant," as "a person who sees, while in a trance, things which by reason of distance or for other reasons are not ordinarily visible," the Court said that the

statute so construed "does not authorize a defendant to prescribe medicines revealed to his hearing by 'occult force' while in a trance." This woman could not have been prosecuted merely for holding herself out as a clairvoyant, but as under the guise of acting as a clairvoyant she did in fact and in law enter upon the practice of medicine, her conviction was sustained. This, again, is a sound and broad decision based upon a principle susceptible of very wide application. A contrary opinion by the Court in this case would also have broken down the entire statute.

THE LEGAL NATURE OF CHIROPRACTIC.

In *Commonwealth v. Zimmerman*, 221 Mass. 184 (1915), the defendant was a chiropractor. He claimed that the basis of chiropractic is the adjustment of the vertebrae of the spine, that the malposition of these vertebrae is the cause of abnormality, that he did not cure but simply adjusted, and that he was not engaged in the practice of medicine. The Court said:

"Although the defendant did not prescribe medicine, and testified that he paid no attention to the patient's description of symptoms or disease, yet it is obvious that his purpose was to treat the human body in order to make natural that which he found abnormal in the narrow field of his examination. The removal of pressure upon nerves is a means of relieving the ills flowing from that source. 'Chiropractic' is defined as 'A system of healing that treats disease by manipulation of the spinal column' (Webster's International Dictionary). The defendant's manipulation was of a most important part of the body and related to a nerve center. It might have been found that it could have no other aim than a prevention of disease or relief from existing disarrangement of bodily functions. That which the defendant did, and its manifest purpose, might have been found to be practicing medicine within the meaning of the statute. Medicine relates to the prevention, cure, and alleviation of disease, the repair of injury, or treatment of abnormal or unusual states of the body, and their restoration to a healthful condition. It includes a broad field. It is not confined to the administering of medicinal substances or the use of surgical or other instruments. . . . In order to practice medicine, one need not cover the entire field of science."

In other words, the Court found that the defendant, a chiropractor, was, in fact, practising medicine. The defendant suggested another defence, namely, that he was exempt from prosecution because his practice might properly be described as "cosmopathic method

of healing," one of the specific exceptions in Section 7, already referred to. In this particular case, the defendant's counsel had neglected to bring up this defence in the lower Court. The Supreme Court, however, discussed the point on its merits, and said:

"Even if this point had been saved, there is nothing in it. 'Cosmopathic' is defined in the New Standard Dictionary as, 'Open to the access of supernormal knowledge or emotion, supposedly from a preternatural world.' Without undertaking to decide what a 'cosmopathic method of healing' may be, plainly it does not include the defendant's operations."

This defendant also claimed the statute to be unconstitutional, but the Court again overthrew this argument, and said:

"The protection of the public from those who undertake to treat or manipulate the human body without the degree of education, training and skill which the Legislature has prescribed as necessary to the general safety of the people, is within the power of the State."

The very next case reported was *Commonwealth v. New England College of Chiropractic*, 221 Mass. 190 (1915), a prosecution of the New England College of Chiropractic for giving that certificate of "Doctor of Chiropractic."

It held that the giving of such a certificate, degree, was unlawful, and the college as osteopaths for prosecution. This case was entirely different statute, and or to perform merely for reference. or to engage in the independent registration to hold themselves as well as for such registration, as an attempt was made osteopaths."

Except as might be inconsistent with again in the provisions of that Act, the term "osteopaths" declared to have the same legal construction in meaning as the term "medicine." That several provisions now appear in the General Laws, Chapter 112, Sections 10 and 11.

The result of the statute of 1909 was to elect a low certain osteopaths already in practice to obtain a kind of limited registration. An osteopath so registered may not legally furnish a death certificate required by law to be furnished by a physician. (Opinion of Attorney-General Henry C. Atwill, 4 Op. A.G. 407, 1915.) Except for this temporary and limited registration, the law regards osteopathy as included in the practice of medicine. Osteopathy is not prohibited, but it is not, except as above stated, permitted under any special license. All osteopaths admitted to practice after 1909 must be fully registered physicians, taking the same ex-

(1916) was another clairvoyant case, while the facts in *Commonwealth v. Houtenbrink*, 235 Mass. 320 (1920) involved treatment of the human eye. In each case the acts described were held to violate the statute, but the cases add nothing to those already discussed. Only last October, the Court decided, in *Commonwealth v. Dragon*, that a man who practised bone setting was, in fact, practising medicine, and subject to the registration statute.

REVOCATION OF REGISTRATION.

Perhaps the most important opinion ever delivered by the Court, came down in September last, in the case of *Lawrence v. Briry*. The amendment of 1917 had authorized the board to revoke any registration for deceit, malpractice or gross misconduct. In this case, a physician who had been registered, was found guilty by the board of gross misconduct. He appealed to the Supreme Judicial Court, which in every particular upheld the action and authority of the board. The opinion was delivered by Chief Justice Rugg, and is worthy of note. In upholding the amendment of 1917, the Chief Justice points out that,

"Soundness of moral fibre to insure the proper use of medical learning is as essential to the public health as medical learning itself. Mere intellectual power and scientific achievement, without uprightness of character, may be more harmful than ignorance. . . . A physician, however skilful, who is guilty of deceit, malpractice, or gross misconduct in the practice of his profession, even though not amounting to an offence against the criminal laws, may well be thought to be pernicious in relation to the health of the community. It is for the Legislature to determine within reasonable limits in the exercise of the police power what the tests shall be for moral character sufficient to enable one to continue in the practice of medicine."

This decision confirms in the board a far-reaching power to uphold the ethical standards as well as the practical skill, of the members of the medical profession.

Here is a considerable body of law as set forth in the statutes and decisions, the obvious purpose of which is to promote the health and welfare of the public by restricting the practice of medicine to men of adequate professional training and skill. But this entire body of law, statutory and judicial, could be wiped out at one stroke by the passage of a statute repealing the registration law. Even as the passage of any law depends upon public opinion, so does its retention on the statute books.

A century ago Massachusetts made an experiment in this direction, a fact probably real-

ized by comparatively few members of the profession today. A statute passed in 1818, relating to medical practice—while it did not impose a criminal penalty for practising medicine without a license, did provide that no person practising “physic or surgery” should be entitled to the benefit of law for the recovery of any debt or fee for his professional services unless licensed by the Massachusetts Medical Society or accredited as a doctor in medicine at Harvard (Chapter 113 of the Acts of 1818). This statute was construed and upheld by the Supreme Judicial Court in several cases, which are here noted for reference: *Spaulding v. Atford*, 1 Pick. 33 (1822); *Hewitt v. Charier*, 16 Pick. 353 (1836); *Wright v. Langdon*, 19 Pick. 288 (1837), and *Hewitt v. Wilcox*, 1 Metcalf 154 (1840). The argument was raised that this statute conferred special privileges and immunities upon a particular class of citizens, but the Court upheld it on the ground that its sole purpose was to guard the public against ignorance and negligence in the practice of the medical profession, “and to insure to the citizens of the Commonwealth, the professional services of a body of men who at least have had the means of being carefully trained in the theory and practice of their profession in a school of recognized character and reputation, under teachers of known science and experience.”

The statute was broadened by several amendments conferring equal privileges on the graduates of certain other medical institutions, but the statute, with its amendments, was apparently repealed absolutely in 1836 (see Revised Statutes, 1836, Chapter 146, Section 5), and no similar statute for registration of physicians enacted until the message of Governor Greenhalge was sent to the Legislature in 1894. An old motto tells us that “eternal vigilance is the price of liberty.” One may say with equal truth that eternal vigilance is the price which must also be paid to secure and maintain adequate public health legislation and sound professional standards in the practice of medicine.

Current Literature Department.

ABSTRACTORS.

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THE ADVANTAGE OF SERUM THERAPY AS SHOWN BY A COMPARISON OF VARIOUS METHODS OF TREATMENT OF ANTHRAX

JOSEPH C. REGAN (*The Am. Jour. Med. Sci.*, CLXII, 3, Sept., 1921).

The author first discusses the objections to various forms of local treatment. Thermocautery, still widely employed, he condemns because it is extremely painful, leads to hideous deformity, and causes prolonged convalescence if the patient lives. It is not specific, may break down into the barrier zone about the infection, and is of no avail if anthrax septicaemia exists.

Chemical cauterization has many of the same contraindications. The possibility of causing nephritis is an added danger.

Surgical treatment is of two kinds—Incision and Excision. The writer states that incision has no place in the treatment of anthrax. It is actually dangerous, as it breaks down the barrier zone, opens wide the blood and lymph streams, and fails to remove the focus.

Excision, at present the most commonly used method, has certain outstanding limitations and disadvantages. When the lesion is on the face or neck, the scarring is bad. If less than the entire area involved be excised, the objections applying to incision obtain. Since anthrax in man is primarily a local disease and usually remains such, any treatment which may tend to generalize the infection can scarcely be looked on as proper. The writer believes excision should be discarded.

Local dressings, local subcutaneous injections of oxygen, and symptomatic treatment may be useful adjuncts to a more specific method, but cannot be relied on alone.

The usefulness of powdered ipecac, arsphenamine, Extract of *B. Pyocyaneus*, and normal beef serum has not been clearly demonstrated.

Serum treatment is free from the objections raised against the previously cited methods, and the statistics quoted seem to show its superiority. Deaths among patients treated with it are not fairly blamable to the serum. It is accessible, and not extremely expensive. The writer's method of treatment follows:

At the beginning, a blood culture should always be taken, as it furnishes an index of the severity of the infection. While waiting for the result of the culture, treatment must be energetically pursued in all cases. In cases with little constitutional disturbance and a small well-circumscribed lesion, 50 c.c. of the serum should be given every eight to twelve hours, intravenously.—Local serum therapy every twelve to twenty-four hours.

Moderate cases require 50 to 80 c.c., intravenously, every eight hours, during the first twenty-four, and then according to progress. Local serum therapy, every twelve hours.

In severe cases which show negative blood cultures, either 40 c.c. every four hours, or 80 to 100 c.c. every six or eight hours, should be given intravenously, until the disease is controlled. Local serum treatment every six to eight hours.

If the blood culture be positive, 100 to 150 c.c. of the serum should be given intravenously every three or four hours, and so continued till the septicaemia is checked or the patient dies.

In internal anthrax, the treatment is the same as in septicaemia. In anthrax meningitis, the serum should be used intraspinally.

As the patients improve, the later doses of serum may be given intramuscularly or subcutaneously.

The technic of the local serum treatment is as follows: From two to three c.c. of the serum is injected at each of three or four points around the pustule. The needle is inserted into the red indurated border just beyond the blanched zone, the serum being directed toward the base of the eschar and injected so as to circumscribe the lesion. Commonly four to six injections suffice.

The writer has reported seven cases all terminating in recovery, though the lesion was on the face or neck. [C. H. L.]

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A NEW ENGLAND MEDICAL ASSOCIATION.

THE advances in medical knowledge which have stimulated the ambition of practitioners to keep informed of the progress made in all departments of study has led to the formation of societies embracing groups of people who may profitably assemble for conference. The American Medical Association has demonstrated in the largest way, the value of conventions by means of which the leaders in progress may reach the profession.

This great organization has found it necessary so to arrange its scientific program that groups of specialists may exchange opinions on the work done in their departments, but the material presented has been so voluminous that the average man finds himself somewhat perplexed in attempting to select the particular meeting which may provide him with the most valuable information. It has sometimes seemed that the vastness of the scope of these annual gatherings has detracted in a degree from the benefits to be derived through superficial comprehension of many diverse subjects, so that some who attend content themselves with hearing a limited number of scientific papers and spend a considerable time on social or other attractions.

To some extent, state society meetings are

sometimes criticized as having too much of a local flavor, and therefore may not draw so many members as might derive benefit.

Another plan has been found to be of great value, consisting of the association of those states which fall into a natural geographic group. This is illustrated by the Southern Medical Association, which is made up of Alabama, Arkansas, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, Missouri, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia and West Virginia. This Association has established a reputation for ideal medical meetings and large attendance. Its membership is about six thousand. Here in New England the natural advantages are ideal for the formation of an association of this kind. There are six states in close contact, with cities in each quite able to accommodate all who would attend meetings. It might be advisable for the *New England Surgical Society* to merge with the internists and general practitioners in the formation of a general association, for it is advantageous to bring representatives of all departments of medicine into discussions of subjects which have common problems.

The success attained by the *New England Surgical Society* may lead some to feel that a coalition might detract from the interest now shown, but where the line of demarcation in subjects to be presented is definite, the topics could be considered in sections, for a gathering of this kind would necessarily demand subdivisions.

There are so many matters relating to medical policies, public health and legislative activities concerning which there should be unanimity of opinion and concerted action, that meetings which bring the influential representatives of their states together would enhance the influence of the profession, add to the enjoyment of practice and ultimately meet the demands of the people in more uniformity of practice.

Another feature incident to a wider acquaintance is the satisfaction of being able to advise patients who are temporarily away from home as to a reliable practitioner in a given locality.

In addition to the advantages to be derived from the consideration of scientific matters, our common responsibilities to and interest in the American Medical Association should lead to the development of unanimity of opinion on the problems of this greater organization.

Definite constructive interest representing New England sentiment, would be welcomed by the A. M. A., and tend to dissipate the feeling that the more remote districts have little influence in shaping the policies of the Association.

The JOURNAL will welcome discussion on the advisability of forming a New England Medical Association.

NEWS ITEMS.

COMMITTEE ON RURAL HEALTH AND MEDICAL SERVICE.—The Committee on Rural Health and Medical Service met at the Boston Medical Library, Monday, December 19th, at 4 P.M. There were present: Dr. Walter B. Cannon, Chairman; Dr. E. H. Bigelow, of the Public Health Committee, Massachusetts Medical Society; Dr. E. H. Place, of Special Committee for Investigating "Rural Health Conditions"; Herbert C. Parsons, of the Mental Hygiene Society; Mr. Plaisted, of the State Department of Agriculture, and Mr. Moyer, State Agent, Extension Education Service. The Chairman reported as to conference with committee of like purpose, of which Dr. Homer Gage is Chairman, and of there being a mutual recognition and agreement that some "survey of state conditions is needed, to learn facts and what can be done to better the situation." "It was agreed, further, that selected hospitals could be used to a larger extent, as teaching and diagnostic centres, and that extension courses in medical education could be arranged, knitting together the profession in city and country." A letter from Dr. Gage was read, giving more in detail the channels for extension of the service of the Society and emphasizing that all such activities belonged to its public health service. The Secretary reported on conferences here and in New York, with representatives of charitable and educational corporations and enterprises relative to assistance in such general extension. Dr. Bigelow expressed the belief that the State Medical Society was equal to the task of assuming these larger obligations and opportunities. The committee further expressed its interest in such an enlargement of the Society's activities, and with such assumption, it was voted this independent committee would cease to function. Meeting adjourned.

PAUL W. GOLDSBURY, *Secretary.*

REPORT OF MEETING OF STAFF OF BOSTON DISPENSARY.—The December meeting of the Medical Staff of the Boston Dispensary was held in the General Admission Rooms of the Medical Department, on Friday, December 16th, at luncheon.

Dr. Mavnard Ladd and associates, Dr. Elmer W. Barron, Dr. Allan R. Cunningham, and Harold A. Gale, of the Pediatrics Department, gave a clinical program, demonstrating with cases from the Out-Patient Department and the Hospital for Children.

Dr. George Cheever Shattuck, Assistant Professor, Department of Tropical Diseases, at Harvard Medical School, at present in charge of a clinic at the Boston City Hospital, for the study and treatment of tropical diseases, gave an interesting talk concerning his work on Tropical Diseases.

NOTES FROM DISTRICT SOCIETIES.

WORCESTER DISTRICT MEDICAL SOCIETY.—Dr. Frank T. Oberg, Worcester, son of Mrs. Carl Oberg, and Miss Ester Eekstrom, daughter of Rev. and Mrs. John T. Eekstrom, of Worcester, were married November 30, 1921. Dr. Oberg, who has been assistant obstetrician at the Worcester City Hospital, has removed to Hutchinson, Kansas, where he has an appointment as obstetrician to the Gage-Hunt Clinic.

At the regular clinical meeting of the Staff at Worcester City Hospital, held December 16, 1921, Dr. George M. Albee gave a report of a study of the action of quinidine in five cases of auricular fibrillation. Dr. Gilbert W. Haigh demonstrated the diagnostic value of inflation of the colon and read the report of a case of trichinosis. Dr. Ralph Ellis reported two unusual cases of carcinoma of the stomach.

DORCHESTER MEDICAL SOCIETY.—A meeting of the Dorchester Medical Society was held on December 21, 1921, at the Municipal Building, Columbia Road, Dorchester. Dr. William C. Emery presided. Dr. John Adams was the speaker of the evening. The subject of his discourse was "Backache." Several lantern slides added to the interest of the talk, and the large gathering gave Dr. Adams a unanimous vote of thanks for his most entertaining and instructive hour. A very homelike collation topped off the session.

JOSEPH I. GROVER, M.D.,

Correspondent for the Norfolk District.

Miscellany.

COMMITTEE ON LEGISLATION.

THE MASSACHUSETTS MEDICAL SOCIETY.

THE call for the meeting of the Joint Committee on State and National Legislation presented so many matters of interest that it is herewith reproduced. The profession should study these questions in order to aid the Committee on Legislation.

The second meeting of the Auxiliary Members with the Joint Committee on State and National Legislation will be held at the Boston Medical Library, Wednesday, December 28, at 4 o'clock.

Matters of moment in the legislative programme are coming up for discussion, and it is earnestly hoped that you will make a special effort to be present. The first meeting, held on December 9th, was an important and interesting one, and an abstract of the free discussion of various questions considered at that time will be sent you shortly.

PROBABLE TOPICS FOR DECEMBER 28TH.

1. *The Sheppard-Towner bill* simply awaits acceptance by the State and the award of funds to become operative. The Massachusetts Department of Public Health has asked the aid and advice of every physician in the State in formulating a programme and carrying it out successfully. It is worthy of note that, up to the present time, the provisions of the bill directed toward maternal welfare have attracted far more attention than its important aim in the promotion of infant well-being.

2. *The Midwife.* Last year, a bill was introduced to license midwives. This year, a similar bill is already in preparation. It will provide for the examination and registration by the Board of Registration in Medicine of qualified graduates of any approved school for midwives which gives a course of not less than six months. Midwives already established, if properly qualified, will be given due consideration.

No operative work will be countenanced.

Registration lists are to be kept by city and town clerks.

This bill embodies the views of those who favor the recognition and regulation of midwives, the aim being gradually to improve their quality.

The opponents of registration feel that as time goes on the midwives will be steadily eliminated. They trust to popular education and a gradual conformation to American customs. They regard it as unwise to stamp with official approval those women who after a brief course undertake this very important branch of nursing.

The present laws permit the prosecution of midwives for illegal acts. Even under a registration law it would appear to be impossible to keep a check upon unauthorized, ignorant women acting as assistants in a friendly and neighborly way in uncomplicated deliveries.

What position shall the Committee take? There are at present, probably, about five hundred midwives practicing in the State, of whom about three hundred are in Boston and Greater Boston.

3. *Medical and Premedical Education.* The Board of Registration in Medicine has been given the power to conduct, for candidates, practical clinical examinations, utilizing for this purpose hospital patients. This step forward will help to eliminate those whose medical knowledge has been gleaned chiefly from quiz compends.

This year the Board will again advocate two years of college training or its equivalent, as a required preliminary to the study of medicine. The need of this training to fit one to undertake the study of medicine today is plain. It

is absolutely unfair to permit any unqualified student to start out upon a course which he is unfitted to pursue. And it is likewise unfair to permit any institution to lure students to an inadequate training for their life work.

The Board of Registration in Medicine also proposes another bill which will permit the registration of medical students for the limited practice of medicine under the supervision of instructors. This bill is necessary in order to enable the continuance of certain phases of clinical instruction carried on with students who are themselves not qualified by law to act as physicians while at the same time registered physicians are forbidden to associate with them in the conduct of a case.

4. *Chiropractic.* It is likely that, this year, a concentrated effort will be made to establish a special chiropractic board for the examination and registration of chiropractors. The present law provides that the practice of osteopathy is the practice of medicine. There is no reason to suppose that the same ruling would not be applied to chiropractic.

If the practice of osteopathy and the practice of chiropractic are both to be classed as the practice of medicine in its larger sense, does it not inevitably follow that all applicants for license to practice these cults must show their fitness to qualify for registration in the practice of medicine? The State has taken no steps to dictate methods of practice, but in standards of fitness it is, and should remain, inexorable.

5. *Vaccination.* For several years, the Joint Committee has advocated the extension to private schools for the compulsory vaccination regulation which now applies only to public schools, and they have also sought to correct the notorious abuse by misguided individuals of the privileges attaching to the issuance of certificates of physical unfitness for vaccination. In the face of the fanatical zeal of those opposing vaccination, much work must be done to bring before the public the true facts regarding vaccination and smallpox.

6. *Vivisection.* There has been held in Boston recently an interstate conference of those opposed to vivisection. Last year they sought to forbid the use of dogs for animal experimentation. Their aim unquestionably is to prevent the use of any animals in the aid of medical science regardless of the effects upon medical progress and regardless of the necessary withdrawal from use of remedies of such established value as, for example, diphtheria antitoxin.

There is every indication that their onslaught on the Legislature this year will be greater than for several years past. There seems to be a very definite relation between opposition to animal experimentation and a disregard for a truthful statement of facts. Moreover, some of

the followers of certain cults seem inclined, in their opposition to scientific medicine, to join forces with the anti-vivisectionists.

7. *The Training of Nurses and Attendants.* The resolutions passed by the New England Surgical Society about fifteen months ago, and the article by Dr. Mayo on the nursing situation today, have brought to the front the failure of our training schools to supply, up to the present time, the demand for nurses who will take care of sick people, especially sick people of moderate means. Of course, present economic conditions are bringing more applicants to our training schools. Training schools for attendants are being established. Conditions will improve slowly under purely economic forces. But today, numerous questions are being asked:

Has the Board of Registration for Nurses gone too far in its requirements?

Is there any practical way in which the training of nurses can be graded according to the type of work which they intend to undertake?

Is the training of attendants, and their recognition by the State, the answer to the problem?

Will the training of attendants carry us back to the conditions existing in the early days of the training of nurses?

If we can secure a simplification of the nurses' training without lowering professional standards, much will be accomplished.

Legislation may be proposed.

Can we assume any leadership in the matter?

Yours very truly,

J. W. BARTOL, *Chairman.*

A NEW ENGLAND HOSPITAL ASSOCIATION.

A MEETING of New England Hospital Executives was held at the Boston Medical Library on December 7, 1921, to consider the formation of a New England Hospital Association. The meeting was called to order by Dr. John M. Peters of the Rhode Island Hospital, Providence. There was an attendance of 93, representatives being present from all of the New England States.

Dr. A. R. Warner, Executive Secretary of the American Hospital Association, addressed the meeting, explaining the plan of geographical sections as developed by the American Hospital Association. He proposed that the formation of a New England Hospital Association be considered in the light of the following principles:

1st. That there be strictly common basic viewpoints and interests in the emphasized activities, and no real conflicts in any activity of the organization.

2nd. That the organization fill a definite need not within the legitimate scope of any other organization and promptly develop positive usefulness.

3rd. That the plan shall, in advance, convince all of the groups it aims to unite, that the organization will properly represent and promote their views and their interests.

Because of the greater number of hospitals in Massachusetts, together with the centrally located situation as regards the rest of New England, Dr. Warner felt that the Massachusetts representation would quickly overshadow, out-vote, and control the activities of such a New England Hospital Association, to such an extent as "eventually to leave a New England Hospital Association in name and a Massachusetts Association in fact." He submitted the following plan:

Each New England State should form a state hospital association, to become a separate association and, as soon as fully organized, become a separate geographical section of the American.

There should be formed a correlating and central body known, perhaps, as the New England Hospital Council, formed by two or three delegates from each state association to correlate and promote the organized hospital activities of all the New England States; also to represent and to transact such business for each and all of the Associations as shall be delegated to it. The Council should elect its own chairman.

A joint annual meeting of the Associations of all the New England States should be held somewhere in New England, under the auspices of one of the state associations. The officers of this association should prepare the program and preside over the general sessions. This meeting would be known as the Annual Convention of the New England Hospital Associations.

The time and place of each Annual Convention and the selection of the Association to assume responsibility therefor should be determined by the Council. Any expense of the meeting could be assessed by the Council on the Associations in proportion to their membership.

At each Annual Convention there should be separate meetings of each Association under its own officers, to discuss satisfactorily the specific problems of each state, as well as joint sessions for the discussion of topics of common interest and bearing.

This plan of organization would not only avoid all the difficulties of the other, but give additional advantages. The principal object of the Association would be assured a greater success. More people would be attracted to the Annual Convention, especially from states other than Massachusetts.

The plan submitted by Dr. Warner was thoroughly discussed by the members present.

Dr. Sexton, former President of the Connecticut State Hospital Association, gave a short review of the reasons for the formation of the Connecticut Hospital Association, and some of its accomplishments in the legislative field.

The Association was able to bring about the passage of a bill making it necessary for a patient leaving a hospital to satisfactorily adjust his hospital account before leaving. This bill being drawn upon the same principle as the legislation previously passed to prevent the jumping of hotel bills.

The second bill passed, as the result of the Association activities, was one making Workmen's Compensation Insurance Companies pay the full cost of the board of patients. Previously, the insurance companies had been charged at the regular rate charged to charity patients, which rate was usually lower than the actual cost of caring for such patients.

Representatives from the various states were called upon to express their opinion regarding the advantages of the formation of a New England Hospital Association as compared with the advantages of the formation of separate state associations. Speakers from Maine, New Hampshire and Rhode Island stated that in their opinion it was doubtful if any state organization could be formed in these states.

Mr. George T. Chaffee, of Vermont, announced that the Vermont Hospitals had already completed the formation of a State Association which, he thought, they would not wish to give up. As to the reception of the New England Hospital Association in Vermont, he was unable to say.

It was finally voted, "That this body is in favor of forming a New England Hospital Association and that it be affiliated with the American Hospital Association as a geographical section."

The Chair was then authorized to appoint a committee to bring in recommendations for a Constitution and By-Laws, and a Nominating Committee.

The meeting was then adjourned. Luncheon was served on the first floor of the Medical Library, and a very pleasant hour was spent in renewing associations with old acquaintances and making new ones.

In the afternoon meeting, the Constitution and By-Laws submitted were read and accepted. The following officers were elected:

For President, Dr. Joseph B. Howland, Peter Bent Brigham Hospital, Boston, Mass.

For Vice-President, Miss Rachael G. Metcalfe, R.N., Central Maine General Hospital, Lewiston, Maine.

For Treasurer, Dr. Nathaniel W. Faxon, Massachusetts General Hospital, Boston, Mass.

For Trustee for four years, Dr. John M. Peters, Rhode Island Hospital, Providence, R. I.

For Trustee for three years, Dr. Louis A. Sexton, Hartford Hospital, Hartford, Conn.

Trustee for two years, Miss Ida F. Shepard, R.N., Mary Hitchcock Memorial Hospital, Hanover, N. H.

For Trustee for one year, Dr. Thomas S. Brown, Mary Fletcher Hospital, Burlington, Vt.

Application has been made to the American Hospital Association for admission as a geographical section.

Obituary.

LUCY E. WETHERBEE-ROCKWELL, M.D.

DR. LUCY WETHERBEE-ROCKWELL, the wife of Dr. A. E. P. Rockwell, of Worcester, died there December 18, 1921, at the age of 45. She was born in Boston, but was a resident of Worcester for most of her professional and private life. She was graduated from the Boston University School of Medicine in 1899, taking the highest rank in scholarship in a class of exceptional ability.

For a year and a half she was house physician at the Massachusetts Homeopathic Hospital, and in 1902 established herself as a general practitioner in Worcester, joining the Massachusetts Medical Society ten years later. In 1915, she married Dr. Rockwell, who was one of her classmates in the medical school. During her professional life, Dr. Wetherbee-Rockwell had been at various times president of the Worcester College Club, and had also been secretary of the Hahnemann Hospital Association.

She is survived by her husband and by a sister, Mrs. Kenneth L. Marks, who is assistant professor of chemistry at Simmons College.

Correspondence.

THE PRACTICE OF MEDICINE BY NURSES.

Shelburne Falls, Mass., Dec. 16, 1921.

Mr. Editor:—

The issue of December 15th has just reached me and I was dumfounded to read your article under the heading of *The Practice of Medicine by Nurses*. The statements are as erroneous as they possibly could be.

Without any question of a doubt, I am one of the doctors your article refers to.

If that is the case, I challenge the statement, evidently originating from the District Attorney, that the doctors were invited to appear before the grand jury, but did not appear. The fact of the matter is that I, personally, did not know that there was such a thing going on as a grand jury investigation, or any other investigation, until the thing was all over, and even then one of my patients told me that

Dr. — had had the nurse up before the grand jury and had lost the case.

I was surprised to hear that the case had been before the grand jury at all, as it seemed to me that the grand jury was a queer place to refer a purely civil case.

Until I read your article this morning I was under the impression that the doctor in question had taken direct action against the nurse without referring the case to the Board of Registration in Medicine for investigation and action.

The fact of the case in general is as follows: When Miss — came to Charlemont last May, she called on me at my branch office there. I told her that I was glad to see her, and would assist her; at the same time I told her that I was afraid that her object in coming was not wholly for nursing purposes. Miss — stated that she was there to do teaching and nursing and that she had no intention of practicing medicine. About two days after, she attended a man in the village who had been mauled and tramped upon by his horse, with lacerations of head and body. No doctor was called. Although a straight head injury case. Miss — attended the case right through for several days without medical examination or assistance. I call that practising surgery, maybe I am wrong. A few days after, the same nurse attended a case running a high temperature. She watched the case for two days and then I was called in. Laxatives were advised by her in the meantime. I call that practising medicine.

A short while after, the nurse asked me to see another case. Abdominal pain very acute, high temperature. She had prescribed a good dose of castor oil. I went over immediately to see the case and diagnosed acute appendicitis. Sent the case in for immediate operation. Diagnosis was confirmed. I do not suppose you would call that practising, would you? Another case, a few days later:

Woman had been confined by local physician but he went out of town for a few days. Family called me in in his absence, as they were afraid that the stump of the umbilicus was infected. I went to see the case and it looked not at all promising. I dressed the stump and went away, hoping for the best, but doubtful. Next day, I received a telephone call from the nurse saying that she thought she could handle the case herself, and she did. I do not suppose that that is practising medicine and surgery, either.

Another case: I was called to see a patient. I made a diagnosis of acute bronchitis, gave him instructions and left necessary medicine. The next day the nurse went in and evidently stated that she would attend the case and I could furnish the medicine as a druggist.

Some bad sore throat cases attended, till she got scared, then sent for me. Case of chicken-pox diagnosed and attended by the nurse. No doctor called. Other child advised to attend school for ten days, as there was no danger to the other children for that time. The mother took the same disease, and I was called in. Nurse gave the usual instructions and prescribed or advised, whatever you want to call it, the use of laxatives.

These cases are only a few typical cases, and the information that I have given above is as given to me by the mothers, patients and the nurse herself. She has been very busy right along, and I have no doubt that she has attended hundreds of similar cases, during the time that she has been in the community that I know nothing about.

I protested to the nurse that she was taking these cases away from us. She admitted that she had done wrong, but went right on doing the work.

I then erroneously wrote to the Medical Association, thinking that that Association was in control of cases of illegal practice, or, I should say, practising without a license. The reply I received appeared to

me to suggest a didn't-give-a — attitude, but finally from the last counter-battery bombardment, I learned that the Association was not interested in that side of practice; but after that the Board of Registration in Medicine looked after that work.

I dropped out of the controversy from that time on until the chicken-pox case came up, and the same day I went in to see a patient of mine that I had confined a few weeks before, to make a final post-partum visit. I found the baby weighed about half a pound less than at birth. I told the mother that the child was not doing well and should have care. She told me that the nurse was attending the baby and prescribing Mellin's Food.

Those two cases sort of got on my nerves and I wrote in to the Board of Registration, reporting these cases, and asked for action. I thought the thing over and decided to drop the charge, let the people have the nurse, give her a chance to paddle over the roads this winter at her heart's content, so I closed my office at that place, also the controversy.

All summer Miss — has been using her Red Cross car to transport cases to all points away from the local physicians, and not only that, but the outside men, knowing fully the difficulties we were having, greedily accepted the cases she transported to them.

To get a physician for the school, the board, presumably due to the influence of the nurse, went nine miles away and got a recent comer to accept the school work.

The Superintendent of Schools came to me one day early in November and asked me if I would take the school work. I told him I would, but I would prefer to have the resident man have the place, as I considered he had a greater right to it.

At the beginning of the school term, the place had been given to a lady physician from some state department in Boston, but she had resigned or left the state. That appointment, I understand, was at the suggestion of the nurse as well.

When the young fellow from the neighboring town accepted the school place, I considered that the gentlemanly thing for him to do—which he did not do—was to open up an office there and look after the people and, incidentally, climb the hills through the district, and I gave him every chance to do the work by closing my office and handing over what work the nurse had left us.

The district has only a comparatively small practice at best. The nurse goes, for fifty cents a call, anywhere. Her car, repairs, oil, gasoline and general expenses are all paid by the Red Cross.

She is a good, clever, capable nurse, and she can do, and do well, a lot of the minor work, and some of the major work, and get away with it. How, in a small community, with much competition,—fifty-cent charges, everything paid for,—how anyone with a grain of intelligence can expect physicians to have the least show to compete, is more than I can fathom.

I had the district practice, that is, what was left over, after the nurse had attended her cases and transported what she could to outside practitioners, but as a protest, I closed my office there.

Anyone with a grain of sand would have done it long before. It was an inopportune time to do it, as I realized a few days later, when I heard about the matter having been brought up before the grand jury, as it threw suspicion on me that I had been co-operating, in what I have up till now supposed to be a private suit, brought against the nurse by the local or resident physician.

Public opinion is with the nurse. I suppose she is a sort of martyr (Joan of Arc) leading on with the Red Cross flag waving to the breeze.

Public opinion will be with anyone who cuts down medical fees in this district. Anyone, even the Old Nick himself, would be a popular hero who would go around practicing all over the country for fifty cents and furnishing bandages, drugs, and everything.

They say every action has its reaction, and I guess it is so. How any physician can go into that district, if he has any degree of good judgment, now, or at any time, is, or will be, beyond my ken.

I should have thought, Mr. Editor, that you would have been cautious enough to have made more thorough inquiries before printing that article.

Although no names are mentioned, the article is so broad that there can be no mistaking who you referred to. Why you should take such an attitude against a fellow practitioner, with the highest possible credentials, highest daily ethics, whose only professional error is that he realizes that he must have a fee, and that there is a business side to the practice of medicine,—one who has never refused a professional call that had the least grain of a claim on services, tumbling out over the roads in all sorts of weather when others declined the calls,—without referring the accusations to the party accused, seems to me to not be doing the right thing.

It is all very well for those entrenched—as you probably are—with a salary from the State, possibly the accumulations of years of practice and a large following, to criticize erroneously, and do so with impunity.

Fortunately, my shoulders are broad, and I guess I can weather the storm, but please, Mr. Editor, in the future, do you not think it the part of discretion and valor to make sure you are right before using the editorial columns of the JOURNAL, the way you have in this case?

It seems to me that I have given you sufficient information from personal knowledge, and as given to me by patients, to investigate the conditions in the district in question. I am prepared to give names and dates of the above cases. The question is, what is the use of a university education, state examination and state license, if anyone—good, bad or indifferent—can practice without such things?

Personally, I hope things will be allowed to go on. So far as I am concerned, the damage is done already, practice, for the time being, dented badly, your article winging its way along to get in its work.

Never mind, Mr. Editor, the reaction will come some day, surely, and in the meantime let us get on with the good work. I hope the next criticism will be constructive.

Fraternally,

Yours very truly,

W. A. HUTTON.

[Comment: A letter of this character warrants a direct reply—

First. The statements quoted are those made by a public official.

Second. The Editor did not know that the writer of the above letter was the one referred to.

Third. Any challenge to the District Attorney is respectfully referred to him.

Fourth. All investigations or prosecutions of the illegal practice of medicine come under the police power of the state and are criminal, and not civil, actions.

Fifth. Complaints of illegal practice should be made to local police first. When made to Board of Registration in Medicine, under advice of the Attorney General, they are referred to the police departments or the State Department of Public Safety.

Sixth. The matter cannot be dropped. The assertion that there was evidence of the practice of medicine by a nurse will be again referred to the proper authorities. The criticisms of the Editor are not vital to the questions involved. Readers who are interested are respectfully referred to the editorials on the subject, which definitely argue that nurses should not practise medicine and that physicians should be protected.

EDITOR.]

INDEX OF VOL. 185.

A complete Index of the JOURNAL from July to December, 1921, is being prepared and will be mailed later to every subscriber.

Index to Vol. 185 can be secured at the JOURNAL office by those who wish to have their JOURNALS bound.

REGISTRATION EXAMINATION.

The result of the November examination of physicians applying for registration in Massachusetts, are as follows:

NAME OF SCHOOL GRANTING DEGREE	NUMBER EXAMINED	NUMBER REGISTERED	NUMBER REFUSED
Tufts	7	7	
American School of Osteopathy ..	1		1
Mass. Coll. of Osteopathy	2	2	
Coll. Phy. and Surg., Boston ...	3	1	2
Middlesex Coll. Med. and Surg.	8	5	3
Univ. St. Vladimir	1	1	
Laval	1		1
Harvard	5	5	
Imperial Ottoman Constantinople	1		1
Univ. of Maryland Med. School			
and Coll. Phy and Surg.	1		1
Kentucky School of Medicine ..	1		1
Vanderbilt University	1	1	
Univ. of Pennsylvania	1	1	
Stanford University	1	1	
St. Louis Coll. Phy. and Surg. ..	1	1	
Loyola University	1	1	
Marquette Med. College	1	1	
University of Vermont	1	1	
University of Geneva	1		1
Boston Univ. School of Medicine	1	1	
Medico-Chirurgical, Pa.	1		1
Hahnemann, Pa.	1	1	
	42	30	12

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Address.

THE CHALLENGE OF THE CHRONIC PATIENT TO THE MEDICAL PROFESSION.*

By JOEL E. GOLDTHWAIT, M.D., F.A.C.S., BOSTON.

THE subject, as it has been announced, was selected for discussion this evening partly because of the great reproach which chronic medicine represents to our profession, and partly because it seemed in a gathering such as this represents, made up of men of eminence in many different lines, that the subject might be discussed with such breadth that a better understanding of chronic medicine might be reached, or at least a more determined effort made to secure such understanding. Another reason for the selection of the subject is the appeal for relief which has come from the great number of patients afflicted with chronic diseases seen by me in the thirty years spent in dealing with the chronic patient, with the consciousness that each year more and more of these sufferers are turning away from our own profession to irregular practitioners, or members of various cults, for such relief as is possible.

In considering the subject broadly, it can hardly be denied that our profession as a whole has but little interest in chronic medicine, and that the interest is distinctly less than it was

a generation ago. With the improvement in measures having to do with public health, many of the medical conditions which formerly required much time for recovery, have been eliminated, while with the improvement in surgery, based upon the results of asepsis, the many cases of long healing of wounds no longer exists. The natural result of this is, that today rapid recovery from the special symptom for which admission to our hospitals is sought is expected, with the result that a certain rivalry exists with our hospitals and practitioners in the endeavor to show the smallest number of hospital days per patient, with less and less attention to treatment after the primary suggestions. This naturally leaves very little place or time for the cases that do not react promptly or for which there are no specified lines of attack.

That the profession has very little real interest in chronic medicine is obvious not only from the present-day organization of our hospitals, but in the study of the textbooks of medicine or surgery as they exist today. The small amount of space allotted to this great branch of our work means lack of interest or lack of knowledge of the diseases, or of lines of investigation to obtain such knowledge.

Another thing which, it seems to me, we should most seriously consider is that with the patients having chronic disease who are now accepted for study, unless something is done with the elaborate examinations which are being made, other than to report the negative

*Address before the Hartford Medical Club, October 3, 1921.

findings, not only is the patient harmed by the common hopeless or indifferent prognosis given, but our profession is rendering itself liable to great ridicule. No one can have had much to do with any clinic where chronic patients are received, without meeting many who have been through the various diagnostic clinics where most elaborate tests have been made for chemical or bacterial disturbances, with the common summary that all tests are negative, the condition, therefore, being wholly functional, even where there are actual objective lesions present. When we consider the great changes which have occurred in the methods of examination of patients in the past decade, with the constant addition of "new" tests for "this or that," it is surprising what positive opinions in matters of prognosis are ventured.

The many sheets of most carefully prepared papers showing the latest kidney or heart tests, the various blood tests, the basal metabolism, the intestinal contents, the visceral roentgenology, etc., etc., which the patients so frequently thrust into our presence as a challenge, must either go farther in the interpretation of the findings or most of the work must be considered purposeless.

In studying many such records, that which has led to the greatest surprise is the limited space, or usual entire lack, to consider the anatomic structure or the general appearance of the patient. One of the basic principles in the study or teaching of medicine theoretically has always been proper foundation in anatomy, but with very few exceptions, this is still being taught on the basis of one human type, to which all must conform. It should cause little surprise that so little advance has come in the knowledge or treatment of chronic disease when the great variations from this textbook normal are appreciated and when, in so far as my own experience is concerned, practically none of the cases of chronic disease are of this normal structure. Sufficient studies have been made to take this variation in type out of the position of speculation, but in no textbook, in so far as I know, is it mentioned, nor is anatomy taught with reference to it.

Not only do individuals vary in structure,—muscles, bones, viscera, and potentials of activity,—but with considerable regularity such structure carries with it its own potential of disease.

In the time that is available this evening, it is not possible to go into all of the details of the differing anatomy. All that can be done is to offer a very few suggestions, hoping that you practitioners will put the matter to the test, in which case you will certainly contribute important knowledge to our understanding of these cases. Make your examinations none the less thorough than you have, but begin with the structure of the patient, basing the study of the physiology and the general function upon

this special structure, and study its function both when standing as well as lying down. With such an approach, some of the former tests will take on new meaning.

For one feature, the low back conditions probably lead more often than any other, to medical advice being sought for relief, which is not unreasonable when the great variations in structure are appreciated, together with the imperfect mechanics in use. With more attention given to the actual structure of the individual patient, the understanding of these cases will be much simplified. The narrow, high vertebra, with flat articular processes and small, transverse processes of the slender creature upon which its flexibility depends, can be easily demonstrated; as well as the broad, low vertebra, with deeply crescentic articular processes, with broad, transverse processes, upon which the lack of flexibility depends, can also be demonstrated. That six lumbar vertebrae are not uncommon, and that at other times four vertebrae are seen in certain chronic conditions, receives no attention, any more than the position of the last lumbar with reference to the sacrum or the wings of the ilia, or the effect of this upon the sacroiliac joint.

Similar variations in structure that are capable of demonstration exist at the dorso-lumbar region, and with the difference in the shape or position of the last rib, with reference to the varying shape of the transverse processes of the first lumbar, require only slight thought, if studied, to explain some of the pains in the loin for which so many mysterious manipulations are performed or for which much "kidney medicine" is taken.

Of the abdominal viscera, the variations from the textbook normal are very great, and are wonderfully in keeping with the structure of the individual from the point of view of function. The loosely attached organs of the slender type of creature make the extreme flexibility of the body possible, without harm to the organs inside. It requires very little thought to see the possibilities for contusion of the liver, stomach, spleen, kidney, etc., that would exist in the free mobility of the body at the dorso-lumbar level (waistline) if these organs were of the large size of the so-called normal, or were not attached by the long, loose mesenteries or ligaments. If such thought is given, very few "pexies" will be performed in the slender type of individual.

On the other hand, when the very heavy organs of the heavy type of individual are considered, one is not surprised to find the heavier and more secure attachments and a relatively inflexible skeleton that would make harmful movement impossible.

Little attention is given, either from the point of view of structure or function, to the fact that the intestinal length varies, in these anatomic types which commonly have the

chronic disease, from ten feet (the textbook normal is twenty feet) to nearly forty feet, while the variation in the length of the large intestine is from two to three feet.

Such elements must have some importance in the interpretation of the symptoms or the disabilities which the patients present.

Once such anatomic features are recognized, and the function of parts considered in the varying ways in which the body is used, it requires very little imagination to at least see possibilities of difficulty.

For instance, if the position of the spleen is considered and if the blood supply is remembered, the main artery coming, as it does, from the right side of the spine, crossing to the left under and attached to the stomach, it is not hard to imagine that in some of the marked displacements of the stomach, the circulation of the spleen, either arterial or venous, might be interfered with, with natural disturbance of the function of that organ.

Also if the position of the pancreas is appreciated, and the marked downward displacements of the liver and stomach as part of the common visceroptosis, are considered, it is not difficult to imagine disturbances of function of that organ from this cause alone. Certainly the presence of sugar in the urine is not wholly due to irregularities of diet. Again, if the mobility of the kidneys is considered, as occurs especially in the cases of visceroptosis of the congenital type, it requires but little imagination to see that the blood flow to or from the organ, or the drainage of the secretion of the organ, may be easily interfered with. The many cases of orthostatic albuminuria are not hard to understand, and with the change that is taking place in the general structure of the race to more and more the slender type, should lead us to expect to find this more and more frequently as time goes on, unless the individuals are properly trained. The work of Scholter and Veith, showing that lordosis is the essential feature in producing this symptom, is suggestive, yet how few of the profession even know of such possibilities. The presence of albumin in the urine, which should be one of the frequent findings in our people today, is ordinarily considered indicative of serious disease by our profession, instead of many times a functional disturbance of little importance if rightly handled.

With the stomach and intestine, the many malpositions, with the possibilities of the maladjustment leading to disturbance of the physiology, should be too evident from the common roentgenological study to require mention here, but the fact that such physiological disturbances are capable of correction by mechanical means other than operation, does not seem to be so fully realized.

Still further, since with the visceroptotic patient there is always more or less ptosis of the

diaphragm, and since the flow of blood from the abdomen back to the heart is almost entirely dependent upon the regular action of the diaphragm (milking the abdominal veins against the upwardly opening valves), it is fairly easy to believe that some of the abdominal symptoms or disturbances in the physiology are due to the disturbances in the circulation, resulting from this position in which the inaction of the diaphragm can be easily demonstrated by fluoroscopic examination.

In the symptoms which may result from this, it is probable that not all will be referred to the abdomen, but that if the diaphragm does not act properly the regular supply of the blood to the heart may be interfered with. The last word has evidently not been said regarding the many cases with demonstrable disturbances of action of the heart, but with no detectable disease of the organ itself present. In the A. E. F., the many cases of D. A. H. (deranged action of the heart) were, I think, never fully explained, but it is a significant fact that both in the British Army as well as in our own, it was realized that if the individual could be developed so that the body was held erect (in which the diaphragm acts freely), in contrast to the drooped habitual posture of these patients (in which the movement of the diaphragm is very slight), that the heart symptoms disappeared. The British sent such cases to the Command Depots for physical development, and in our Army the special training organizations and convalescent camps performed similar duty.

In this same line, having to do with the general circulation, at the Citizens' Military Training Camp held at Camp Devens this last summer, about seventy per cent. of the men admitted were marked B, or below the normal standard of physical vigor, and unequal to full military duty until trained. The typical drooped figure of the day was the common type. Naturally, none of these men who were accepted had disease of the heart, yet until they were trained to the erect military carriage, the most troublesome feature in their training was the frequent fainting whenever these men were obliged to stand in fixed positions. At the end of the first ten days of training, with the naturally higher position of the chest, which the position of the soldier requires, and in which the diaphragm must act, the fainting ceased.

The effect which such features of anatomic structure and the mechanical maladjustment of the parts has upon actual pathological conditions there is not time for us to go into this evening, nor is it possible, many times, with the knowledge which we possess today, to conclusively prove the relationship between the structural conditions and the symptoms. With some of the cases the cause and effect features can be quite definitely shown with relief following such recognition. With others, much

of the treatment today must be empirical, but justified by the results.

This fact should in no way embarrass us, because in practically all of the great advances of our profession the empirical teaching has preceded the demonstration of the laboratory. The common relief of symptoms by the use of measures based upon the study of the structure of the individual, must mean that some of the disturbance of the physiology seen in these cases is due to simple mechanical features. This should also mean that with continued study along such lines a more exact knowledge of the special features will be had.

As far as one can see from the studies thus far carried out, most of the cases which represent the bulk of the chronic patients must be primarily disturbances of the physiology with the pathologic features resulting from this. The fact that the disturbances of the physiology may be due to the mechanical feature mentioned above is too obvious to be dismissed without investigation. Certainly, the correction of the obvious mechanical conditions can do no harm, and I am sure, from my personal experience, that this alone will so relieve the physiologic distress, that a great many of the cases which otherwise will drift into the hopeless class, will recover. All that is asked of you in this regard is that you will study your cases in this way, and observe the results.

There is one feature in this consideration of the chronic patient that seems to me to need mention at this time, which is, that we do not allow ourselves to be misled in our cause and effect interpretation of our work. That which I have in mind especially, but which is presented as illustrative of a good deal of general reasoning, is the attitude held today regarding the chronic arthritic and focal infection. That the recovery from joint symptoms which follows the removal of teeth or tonsils is at times due to this specific treatment there can be no question, but that all of the cases which ultimately recover do so because of this, anyone who has seen much of such cases must question. We must never forget that the average case of "chronic rheumatism" (by whatever special term it may be designated) gets well and has gotten well long before these special surgical measures have been used. If this were not so, think of the numbers of cripples there would be today. Naturally, if the tonsils are diseased, or if the teeth are in bad condition, they should be treated as matters of general hygiene, but very rarely is the really serious case of chronic arthritis influenced by this. Most of these cases are due, as far as we can see today, to complex disturbances of the physiology as it concerns the abdominal structures, in which probably no one organ is wholly at fault. Imperfect drainage of the bowel may be a factor, but the imperfect drainage of the ducts of the other viscera may be as

important, or the character of the secretion of the different glands or organs may be changed by disturbances of the blood supply.

Too rich a mixture in the gas supply of an automobile makes the motor stall; too weak a mixture leads to a similar result. It seems not improbable that in just such ways the balance which the normal physiology represents may be disturbed, and that because of this, bacteria may multiply, for instance, that would otherwise be controlled, or that other elements that are desired are not produced. Many disturbances are possible.

The problem of the chronic arthritic is an exceedingly complex one, but if studied with reference to the physiologic potentials of the special individual, should be most hopefully faced.

These, gentlemen, are simply a few of the suggestions which I should like to leave with you tonight. The chronic patient is offering a challenge to us, the answer to which will mean either the downfall of a large part of our work or the relief of a great many who now beg for relief, but who receive scant consideration at our hands. Study them, make the most thorough examination of them that is possible, but first study the anatomic structure of the individual with the special physiology that is peculiar to such special structure, as well as the disturbances of the physiology that should be expected, as the body is used by the special case, and see if some of the special tests or examinations do not take on new significance, so that the cases become understandable and relief can be offered.

Original Articles.

THE DIAGNOSIS OF HEART DISEASE WITH ESPECIAL REFERENCE TO ITS IMPORTANCE IN PREVENTIVE MEDICINE.*

BY PAUL D. WHITE, M.D., BOSTON.

FOR the prevention and relief of heart disease, accuracy in diagnosis is all-important. Accuracy in diagnosis will aid us in the further study of the causes of heart disease, in determining its frequency and importance in the schools and in the community at large, in the judgment of its relation to industry and of its bearing on the future of the individual, and as a guide to prophylaxis and treatment. But accuracy in diagnosis is not sufficient unless our vocabulary is consistent. Our terminology needs to be standardized, and a part of the discussion tonight is the presentation of a working classification of cardiac diagnosis, the use of which

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may help to link up our efforts, not only in the various cardiac clinics in Boston, but in general medical clinics and private practice as well. A classification of cardiac diagnosis along the lines of that now presented was published recently by Myers and myself in the *Journal of the American Medical Association**. It is the result of the teachings of Mackenzie, Lewis, Cabot, the New York Cardiac Clinics, and our own experience in the Association of Cardiac Clinics in Boston. I wish to express my indebtedness for some of the ideas of the classification to the physicians in charge of the Boston clinics: Dr. Burton E. Hamilton, at the Boston City Hospital; Dr. Richard S. Eustis in the Children's Cardiac Clinic at the Massachusetts General Hospital; Drs. George P. Denny and Samuel A. Levine, at the Peter Bent Brigham Hospital; Dr. William D. Reid, at the Boston Dispensary, and Dr. Paul W. Emerson, at the Children's Hospital.

No longer do we regard disease in a fatalistic way. For the last two generations the medical profession and, following it, the public at large have realized that much disease results from infections, and that a very large part of these infections should be preventable. No more does one hear so frequently the present-day parent say, "The children must have their chicken-pox, measles, whooping-cough and mumps; the sooner they have them the better off they will be." Some day it may be regarded as very nearly criminal to allow infectious diseases to continue to exist. At the present day, some of us may harbor this thought, but we are a long way from its execution. Medical progress is bound to be slow, as human progress is in any lines of endeavor, but it is only by constant stimulation and effort that we progress at all. Preventive medicine is the aim of every clear-thinking physician who has the welfare of the race in his mind. Prevention of some of the most deadly of the world's diseases is now almost a universal accomplishment, but we are but at the threshold of our labors. Smallpox, plague, yellow fever, cholera and leprosy are no longer the scourges they once were—in fact, they are all so rare that most of us have seen but a very few cases of all of them put together. I have never seen a case of plague, yellow fever or cholera, and I could count on my fingers the number of cases of smallpox and leprosy that I have seen. Great progress has been achieved in the prevention of typhoid fever and exanthematic typhus. The prevalence of pneumonia and the terrible sweep of the influenza have aroused us to realize the vast importance of cutting down respiratory disease. Measles and whooping-cough must go the way of the others. The prevention of venereal disease is arousing widespread interest. Contagion is the manner of spread—all infectious diseases are contagious, but they vary in the degree of their contagiousness. The more contag-

ious diseases have aroused attention first and have been combated, but there are many others much less contagious but almost equally serious. One of these is rheumatic fever, the commonest cause of heart disease in young people. If we can reduce, as we eventually shall, rheumatic fever and chorea, repeated tonsillitis and syphilis, if we will subject to early treatment patients with exophthalmic goiter, the causes of the vast majority of cardiac cripples in youth and middle age will be cut down tremendously. Then we shall have left the problems of arteriosclerosis and high blood pressure which in their turn, we hope, will be fought sometime and limited in their extent.

I have thus outlined the most important part of the program of our newly formed Association of Cardiac Clinics. We do not expect to produce wonderful accomplishments in a moment, but we do hope that in the course of years progress will be made. We feel that the time is now ripe to make such a start here. In New York, an organization was formed several years ago for the prevention and relief of heart disease and in various other cities similar organizations are being formed. To the primary object of the coöperation of the heart clinics of the various hospitals of this city two important measures will contribute: (1) the advance of methods of prevention of disease, and (2) the spread to the people of the need and methods of prevention. The other aims of the organization are: (1) to prevent failure and further heart damage in people already diseased, and (2) to forward cardiac research of all kinds in laboratory and clinic.

With this preamble I shall now turn to my stated topic—the Diagnosis of Heart Disease. That the preamble was essential will shortly become apparent. In the first place we must distinguish between heart disease and what is not heart disease. In our campaign against heart trouble we should obtain accurate statistics. We must distinguish between cardiac symptoms, due to other cause than actual disease in the heart, and true heart disease. This is not always easy. Seventy of 272 cases with cardiac symptoms or signs whom I have examined in consultation in the past two years, did not have heart disease. Yet in most medical statistics at large these cases would be included. The conditions simulating heart disease, which must be borne in mind, are nervousness, hyperthyroidism, early or slight chronic infections, abdominal disease, paroxysmal tachycardia, premature beats and functional murmurs.

ETIOLOGIC DIAGNOSIS.

After we have decided that heart disease is present, then comes the diagnosis of the type. The terms, myocarditis, dilatation of the heart, leaking valve, whether mitral or aortic, heart block, auricular fibrillation, hypertension, and decompensation, are all inadequate in them-

selves. Yet they are the terms one hears in almost universal use. It is important for three reasons to add to the diagnosis, as its most essential part, the cause, that is, the etiologic diagnosis. The reasons are: first, our knowledge of the future of the case is helped by so doing; second, our treatment and prevention of further cardiac damage is more sound; and finally, third, we shall be able better to prevent heart disease by clearly distinguishing, so far as it is possible, the etiologic types. If we do not know the cause, our ignorance should be definitely expressed; for example, "cardiac enlargement and weakness of unknown cause."

Etiologically, the commonest type of heart disease is the *arteriosclerotic*, the condition sometimes called *cardiosclerosis*. It is very frequent, of course, in old age, and often is unexpressed, the term "old age" covering the infirmity without further analysis. In youth, the *rheumatic* type of heart disease is very frequent, including, as it does, damage by rheumatic fever, chorea, tonsillitis and scarlet fever. This is a type that should be reduced materially through the application of the principles of preventive medicine. It must be emphasized here that not only should it be said that a heart is rheumatic, but it is also important to state whether the infectious process is active or inactive—a question often very difficult to answer. If in doubt, it should probably be most wisely considered as active. The rheumatic heart, undoubtedly, may smoulder for years. Another important type that should be combated, eventually with success, is *syphilitic* heart disease through the proper prophylaxis and treatment of syphilis in the community. This type is apt to appear in middle age and, as in the case of the rheumatic heart, may be either active or inactive. Another preventable or reducible type is the *thyroid* heart, the result of chronic thyroid intoxication. Early recognition and treatment of hyperthyroidism is essential to cut down the frequency of the thyroid heart. *Diphtheritic* heart disease is another type, also eventually preventable. Then there is the common *hypertensive* heart disease resulting from or attended by high blood pressure, whether that high blood pressure is the result of kidney disease (nephritis) or of the essential type, probably due to arterial irritability of uncertain cause. The old term, *cardiorenal*, as Dr. Pratt has pointed out to me, is a loose one covering, as it often did quite wrongly, both these causes of hypertension and including, not infrequently, arteriosclerotic or rheumatic heart disease with albuminuria resulting from congestive failure and not actually due to kidney disease. Rarer types are the *congenital*, *unusual infectious* heart disease, such as involvement by the pneumococcus or tubercle bacillus, *trauma*, *obesity* (?), and *tumors*. The importance of distinguishing true heart disease from such a condition as the *nervous* heart has already been emphasized.

The very common condition associated with the nervous heart is also called cardiac neurosis, neuro-circulatory asthenia, the soldier's heart, effort syndrome and, during the war, by the British, "disordered action of the heart."

Summarizing, then, the etiologic classification of heart disease, we must distinguish the following types: arteriosclerotic, rheumatic (active or inactive), syphilitic (active or inactive), diphtheritic, hypertensive, thyroid, nervous, congenital, rare infectious, traumatic, obese (?), and tumors. The athlete's heart is an uncertain entity, undoubtedly often being simply the nervous heart. Finally, the term, "*of unknown cause*," should be used as often as necessary. It is quite a good stimulant.

STRUCTURAL (ANATOMIC) CHANGE.

Having made the etiologic diagnosis, however, we have completed only a third of our task. We must also state the structural or anatomic changes and the functional condition, if we desire to express a complete and satisfactory diagnosis of a given case of heart disease. Under the structural diagnosis comes the whole list of *valve deformities* from tricuspid stenosis to aortic regurgitation. These valve lesions are the only demonstrable signs of involvement of the endocardium. *Pericardial pathology*, from fibrinous pericarditis to pyopericardium, should be here included. *Deformities and lesions of the great vessels*, such as aortic aneurysm and patent ductus arteriosus fit into the structural classification. *Cardiac enlargement* or abnormal position, such as *dextrocardia*, *ventricular preponderance* and *auricular hypertrophy*, also belong here. *Myocardial pathology* itself may be taken for granted when the etiologic type is mentioned, whether it means the Aschoff bodies of the rheumatic heart, the fibrosis of arteriosclerosis, the destruction from diphtheria, syphilis, or hyperthyroidism, or the hypertrophy with hypertension.

FUNCTIONAL CONDITION.

Finally, the third diagnostic classification, into which we should fit every case, is the functional. This is of great importance in proper judgment of prognosis and treatment. It includes disordered heart action, whether arrhythmia, regular auriculo-ventricular heart-block, intra-ventricular block, auricular flutter, or alternation. Hypertension may also fit here. In the proper use of digitalis and with the advent of quinidine therapy, it will become more and more essential to recognize auricular fibrillation and flutter. Because of the serious import of pulsus alternans, that, too, should be looked for and stated when found.

And finally comes the statement of the presence or absence of *heart failure*. Following Lewis, we may well discern two types, and following the New York Association of Cardiac Clinics, we may well discern four or five degrees.

The types are the *congestive* (that type of failure ordinarily spoken of as decompensation) and the *anginal*. In many cases, the anginal type of failure is much more serious than the congestive, and may bring death more speedily.

Both these types have all *degrees*, depending upon the amount of exertion necessary to bring on symptoms or signs of the failure. These degrees may be clearly expressed as follows:

1. Ability to carry on slightly decreased, habitual activity (but inability to carry on full activity) without symptoms, whether dyspnea or pain.

2. Ability to carry on moderate habitual activity.

3. Ability to carry on only the lightest habitual activity without distress.

4. Inability to carry on any habitual activity without distress (whether dyspnea or pain).

I shall summarize this classification with a few examples:

- a. Arteriosclerotic heart disease with auricular fibrillation and heart failure of the congestive type (able to carry on only the lightest habitual activity without distress).

- b. Rheumatic heart disease with mitral stenosis, auricular premature beats and failure of the congestive type (able to carry on slightly decreased activity).

- c. Syphilitic heart disease with aortitis, aortic regurgitation, pulsus alternans and failure of the anginal type (able to carry on moderately diminished activity).

- d. Cardiac neurosis with paroxysmal tachycardia without failure.

- e. Cardiac enlargement of unknown cause (without failure).

DIAGNOSTIC METHODS.

Having completed this brief discussion of the diagnostic classification of heart disease, a few words should be said about the methods of arriving at a diagnosis in a given case. To establish the etiologic diagnosis, the *history* is, of course, of primary importance, the past history of illnesses ranking first. Rheumatic fever, scarlet fever, chorea, repeated tonsillitis, peritonsillar abscess, diphtheria, and syphilis are the most important diseases to ask about. Sometimes casual questioning will elicit no history of rheumatic fever or chorea, while careful questioning of the same patient or his relatives will bring out the fact that there was at one time a good deal of trouble with growing pains in the joints and muscles, or nervous twitching for which he had to be sent home from school. The relationship of influenza to heart trouble is of interest particularly because a good many people with heart symptoms ascribe the onset of their symptoms to the early part of their convalescence from the "flu." Careful analysis will usually show that these hearts are really not influenza hearts but rather the nervous heart or rheumatic or other type of heart dis-

ease first exposed by the severity of the influenza.

The *family history* will help, at times, a good deal in showing the prevalence of sensitiveness of the nervous system in a family. Occasionally one also discovers other members of the family who have had rheumatic infections. Possibly, also, a tendency to presenile arteriosclerosis may be inherited.

Physical examination and laboratory tests will also bring considerable evidence to enable one to make an etiologic diagnosis. We can obtain help from the *Wassermann reaction*, the *blood pressure*, urinalysis, the finding of peripheral arteriosclerosis (including the *arcus senilis*), the discovery of mitral stenosis (indicating, as a rule, the rheumatic type), of pulmonary stenosis (indicating congenital heart disease), and of uncomplicated aortic regurgitation first found or giving symptoms in later middle age (indicating syphilitic heart disease), the finding of an enlarged thyroid gland with or without exophthalmos or, at present, an abnormally increased basal metabolism, and finally nervous tremor, a nervous temperament, or evidence of an infection. Any of these may help in arriving at our first diagnosis, that of cause.

Next, in order to diagnose structural change, the *stethoscope*, *percussion*, *x-ray*, *blood pressure*, and the *electrocardiograph*, all are of value. Of course, in every case the interpretation is of more importance than the actual record of the findings. Murmurs may be found, but unless they are interpreted correctly, one may be led astray in the entire summary of a case. The relative unimportance of the systolic murmur generally, the distinction between the diastolic murmurs of aortic regurgitation and of mitral stenosis, the significance of accentuation of the third heart sound and the unreliability of one reading of slight hypertension, are examples of the importance of proper interpretation. Electrocardiographic evidence of preponderant hypertrophy of either ventricle, the significance of an increased pulse pressure and the value to be placed on percussion findings, are other points for careful study in interpreting the degree of structural change. Although simple observation of the patient may be sufficient, in some cases, with percussion, auscultation and sphygmomanometry, we must be prepared in difficult cases or in the complete study of any case, to resort to the x-ray and the electrocardiograph (or the polygraph if the electrocardiograph is inaccessible) as valuable instruments of precision, of which there are too few in medicine.

Finally, in order to arrive at a functional diagnosis, we must combine the patient's own story of his limitations of activity, our own observations of the degree of failure (dyspnea, cyanosis, edema, and enlarged liver) and tests of exertion if in doubt. Various tests are in use for

this purpose; one of the best is that of swinging dumb-bells of a certain weight (say five or ten pounds) over the head and between the legs at a certain rate of speed. As has been frequently pointed out, this test, or comparable ones, are tests of physical fitness, not simply of cardiac capacity.

To determine *disorders of the heart beat*, clinical observation may often suffice if one is familiar with the findings of premature beats, heart block, auricular fibrillation and pulsus alternans; but very often graphic records—the electrocardiogram and arteriogram—are essential to clear up the situation. And finally, in the discovery of the very important condition of intraventricular block the electrocardiogram alone will suffice.

Thus much care and thought must be expended in arriving at a satisfactory cardiac diagnosis in a given case, with the proper utilization of methods and the proper classification of the diagnosis when we have secured all the data. By this care and thought we shall treat our patients better, advance our knowledge of heart disease, and establish a firmer basis for our all-important task of preventing heart disease.

PROBLEMS FOR CARDIOVASCULAR INVESTIGATION.*

By SAMUEL A. LEVINE, M.D., BOSTON.

It is the purpose of these meetings and of the efforts of our society to stimulate a new kind of interest in heart disease. We are not principally concerned with questions as to whether this particular mode of treatment of heart failure, or some other, is the proper one. Our main concern is how to diminish the incidence of heart disease, how to decrease the disability of the individual once he develops heart disease, and how to enable these unfortunate patients to remain, in some measure, self-supporting, despite the permanent disability of the heart.

With this in mind, I would like to discuss some of the problems that deserve our attention. It is not the intention to consider many questions that will continue to interest investigators, questions that in themselves are worthy ones, and will, when solved, make more rational our views as to the whole matter of cardiac disorders. The mechanism of the heart beat has been carefully studied, and other physiological points are being elucidated from time to time. Questions of drug therapy are also interesting many students, *e.g.*, the value of quinidine in patients with auricular fibrillation, the mode of action of digitalis in various conditions. But these frequently concern themselves with the treatment of the already damaged heart.

Much more important would be information that would throw light on the prevention of heart disease and its disabilities.

Before the investigator may have the effective stimulus for his work, the public, who is in all such matters the party most concerned and whose support is always essential in any undertaking which in itself is not particularly remunerative, must understand its importance and its grave urgency. A great deal of progress has been made in the past decade or two with tuberculosis. Everyone is aware of its significance, of its economic as well as of its medical aspects. But people hardly appreciate that the disability from heart disease to a nation is of no lesser moment. I come, therefore, to the first point that needs investigation, *i.e.*, the exact incidence of the various types of heart disease throughout the country. There are several points involved in this problem. I say various types of heart disease, because it would not be so important to approach the problem if the sufferers from heart disease were all old people, if they belonged to the group of senile hearts. But there are so many thousands of our children and our young adults dying every year of valvular heart disease. Furthermore, such a study might throw light on the regional distribution of heart disease throughout the country. Is a particular climate more conducive to the development of a particular type of heart disease? We have impressions on these matters, but they are only impressions, and we need facts. It is my opinion that valvular heart disease is more common in New England than, for example, in the Southern States. You can readily see that information of this type may be of value to those individuals who are in the so-called vulnerable stage of heart disease, who so frequently develop the more serious aspects of the disease when they continue to live in the same climate or locality. Moreover, this study would emphasize the enormous economic loss to the nation as a result of the premature deaths of so many of its citizens.

We now come to the matter of prevention. The question is intimately linked up with the cause of heart disease and will naturally be different for the various types. It is questionable, for example, whether any effective good will come from researches on *congenital heart defects*. The prophylaxis of *syphilitic disease of the heart* is primarily a problem of venereal disease. It may be of interest to know what factors come into play that determine whether the cardiovascular system, particularly the aorta, is to become involved in the luetic infection. One gets the general impression that physical effort is partly responsible for it. For it is strikingly true that aneurysm of the aorta is prevalent in hard-working people, in men of physical strength, and less common in the sedentary and more feeble types of individuals. Another point that may soon be avail-

* An address given before the Boston Association of Cardiac Clinics, at the Massachusetts General Hospital, November 17, 1921.

ble to study is whether the modern, intensive treatment of early syphilis has had any influence in diminishing the incidence of aneurysm of the aorta.

The prevention of *toxic heart disease*, like diphtheria myocarditis and goiter myocarditis, must also be viewed from the angle of the primary disorder. The former is not of great moment, because most cases of diphtheria recover with an unimpaired circulation. The latter, on the other hand, is of distinct importance. We are as yet ignorant of the exact nature of the myocarditis produced by hyperthyroidism. How soon in the disease is the heart involved, and is there always a permanent damage to the heart once it is involved, are questions that need to be solved. Their solution will enable us to advise our patients more intelligently as to the form of treatment for exophthalmic goitre. At present, it sometimes is difficult to decide whether the patient should resort to the radical measures of surgery which entail an appreciable operative risk, or to try the x-ray or medical treatment. The point that needs to be clarified is whether a continued intoxication of the heart during the course of the more prolonged methods of treatment does occur, and if so, does the surgical procedure have advantages in this regard to counterbalance the operative risk. Animal experimentation along these lines might be of distinct help. Furthermore, careful studies of long-standing cases showing the end-results, particularly with regard to the heart, should be made of a large series of patients with hyperthyroidism treated by the different methods.

The fourth type of heart disease is the *senile heart*, with structural or functional changes of the heart muscle and the blood vessels. This is really a problem that is intimately related to the whole question of degenerative processes in the body. From the very nature of it, one would suppose that future medical progress in its prevention is apt to be slow and disappointing. Very little new knowledge concerning the prevention of arteriosclerosis, chronic nephritis, and chronic myocarditis has been developed in recent years. The whole question is an extremely difficult one. It is not at all unlikely that the present-day mode of living in a modern urban community has some bearing on it. The constant nervous strain associated with the busy life in a large American city may be an appreciable factor in producing coronary sclerosis, chronic myocarditis and other degenerative diseases. Sir William Osler used to refer to angina pectoris as the New York business man's disease. In this connection it might be valuable to obtain accurate comparative statistics of a disease like angina pectoris in this country and in a foreign country like China. Personal expression of opinion by physicians who have practised in China, indicate that this disease is much less common there than here. Is this true, and if so, is it due to their mode

of living or to the lower protein diet that is prevalent there? Such comparative statistics from China, Greenland, Alaska, etc., might throw considerable light on problems that at present remain unsolved.

In all problems of cardiovascular disease, we must be careful in interpreting animal experiments in the light of human pathology. If rabbits develop arteriosclerosis when fed on a very high protein diet, are we to conclude that a similar mechanism is going on in the human body? If the experiments are valid and the conclusion true, it is a most important fact, and might go far in producing a general reduction in the protein content of our diet.

A word must be said concerning focal infections as to the cause of the chronic degenerative diseases. What rôle do the tonsils, teeth, sinuses, gastrointestinal and genito-urinary tract play in producing these changes? I am sorry to say that we know very little about this. Thousands of people are having their tonsils removed, but has it diminished the incidence of these diseases? It may be too early to answer this question, because tonsillectomies on a large scale are of very recent origin and therefore more time must elapse before the necessary information will be available. A quick and accurate method of approach at the problem concerning the rôle of focal infection, is difficult to construct.

We now come to the last and most important type of heart disease, *i.e.*, *valvular disease of rheumatic origin*. I purposely add rheumatic, notwithstanding the fact that other infectious diseases, on rare occasions, also produce valve injuries, because it is by far the most common cause and, possibly, the only cause of conditions like typical mitral stenosis. I include with rheumatic fever, chorea and acute tonsillitis, with joint or muscle pains. This condition also involves the pericardium and myocardium. It is the type of heart disease that affects such large numbers of our children and young adults, either running a comparatively short and fatal course or—what is much more frequently the case—impairing their health insidiously and producing years of physical disability, often rendering them bed-ridden for many months and terminating in premature death.

Before much progress can be hoped for in the prophylaxis of valvular disease, it will be necessary to find the specific cause of rheumatic fever. At the present time, the best authorities are very skeptical of the streptococci or of the micrococcus rheumaticus of Poynton and Paine as the etiological agent. I gather that Dr. Swift, of the Rockefeller Hospital, takes the view that at present the cause is unknown. Such studies as he is carrying out in search for the cause of inflammatory rheumatism are of the greatest value and of fundamental importance. There are other factors that might throw light on the etiology of this

disease, *e.g.*, the seasonal variation and the family incidence. We have all been struck by the occurrence of rheumatic valve disease in two children of the same family; one may already have the outspoken signs of chronic endocarditis, and then a sister or brother comes down with chorea or inflammatory rheumatism. This type of heart disease is not inherited, like syphilis or hemophilia, and yet there must be something in the constitutional make-up or in the physical environment of some families to make them more vulnerable to valvular disease.

Another problem that deserves our immediate attention is the rôle that the tonsils play in causing valvular disease. Here, again, we must be very cautious in our deductions. The pitfalls are many. If the tonsils are an important portal of entry of the virus of rheumatic fever, then one would expect to diminish the ravages of that disease by early tonsillectomy. Is the incidence of valve disease appreciably less, for example, in a large group of children who have had their tonsils removed, as compared to a similar group living under approximately the same conditions, who have not had their tonsils removed? Dr. Alexander Lambert, in studying the prevalence of rheumatic fever at the Bellevue Hospital, New York, thought that during the past ten years it had diminished, and accredited the change to the frequent tonsillectomy and better dental care that the children were having. It will take many years of careful study to answer this question, and the problem, which is quite laborious, will have to be undertaken and followed by the same observers over a long time. I am told that some such scheme is being planned in the city of Rochester, N. Y. My only fears are that as time goes on, enthusiasm may subside and the results will suffer. For the proper solution of this problem, large numbers of school children must be examined carefully to eliminate those who already have heart disease. For if they are overlooked and subsequently included among those who developed heart disease despite early tonsillectomy, the conclusions will become useless. Inasmuch as such a study is necessarily statistical and comparative in nature it is of the greatest importance that all the data be compiled with extreme accuracy. An undertaking of this type, to extend over many years, deserves the consideration of large philanthropic foundations. No independent man, or group of men, unless working under some such scheme as was established in Framingham for the study of tuberculosis, will be able to accumulate the desired data.

The importance of tonsillectomy, proper care of the teeth, and general hygiene, in patients already showing evidence of organic, valvular or rheumatic heart disease, must also be analyzed. Dr. St. Lawrence, of New York, has followed a small group of such cases, and one is led to believe that the progress of the

heart condition is altered favorably by the above prophylactic measures. Such studies are extremely important, but need to be carried out on a much larger scale and over a longer period of time. It is important in relation to all questions to know the exact incidence of rheumatic fever in our communities, the frequency of subsequent heart involvement and the exact prognosis of the different types of complications. Without these facts it will be impossible to interpret properly what changes in the natural course of events we produce by the procedures of prophylaxis.

In the treatment of heart disease, I wish to call attention to but one phase, *i.e.*, the rôle of exercise and rest. There is considerable difference of opinion as to when and to what extent the one or the other should be employed. I have hoped to get more information on this problem by animal experimentation, but as yet have not been able to start the work. It is questionable whether results obtained by one observer in his clinical experience, will be sufficiently convincing to answer this point. It is the writer's opinion that most patients with organic heart disease receive too little rest treatment rather than the reverse. So often patients enter our hospitals with symptoms of cardiac failure and just as they are partially recovered, are discharged, only to develop the same symptoms because of insufficient rest during the convalescence. It would seem, at times, that actually more permanent good might accrue to the community if fewer cardiac patients were admitted to our public hospitals, and if they were cared for thoroughly until some degree of reserve is developed, upon which they may draw when they return even to their restricted activities. Furthermore, our duty is not ended when the patient is discharged from the hospital. A great deal may depend upon the proper advice given at this critical time, concerning the further convalescence, and on our efforts to guide the patient into the right sort of an occupation later. As Mrs. I. M. Duggan, of New York, puts it, "If the proper treatment of a cardiac is not drugs, but a change of occupation, should this not be supplied, just as an operation would be given free to a hernia patient, or quinine to a case of malaria? . . . The cost of finding a cardiac lighter work is far less than the cost to the same hospital of this cardiac, who will return repeatedly for longer and longer periods, if he is allowed to undertake his former occupation."

The above considerations, in a rough way, to be sure, summarize some of the important points that confront those who are interested in the general problem of heart disease. You can see that it is a difficult matter, and until the general public is more clearly aware of its great economic importance, the necessary stimulus for its attack will be insufficient. Furthermore, a great deal of statistical data must be accumulated, and for certain aspects of the

problem, laboratory investigations will have to be carried on. The ideal method of approach would be a concerted effort by a group of investigators working in a community over a long period of time. In the meantime, isolated observations, made in various centers, may, we hope, continue to add to our knowledge and in that way diminish the ravages of organic heart

COMMON PULMONARY DISEASES CONFUSED WITH TUBERCULOSIS.

BY EDWARD O. OTIS, M.D., BOSTON.

*Address at the Tuberculosis Institute for Physicians
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SHORTLY after the armistice in 1918 there was held in Paris, under the auspices of the Research Society of the American Red Cross, a notable conference on tuberculosis of the lungs, participated in by many well-known medical members of the American Expeditionary Forces, as well as some equally distinguished members of the French, English, and Italian medical service. Among others, there were present from our own forces, Brigadier-General W. S. Thayer of Johns Hopkins, Lieutenant-Colonel Webb of Colorado Springs, Major Richard C. Cabot of Boston, and Lieutenant-Colonel E. H. Bruns of the Regular Army, long associated with Colonel Bushnell at the Fort Bayard Sanatorium. From the French Army were the well-known specialists Major Rist and Colonel Sergeant, and from the English, Colonel Sir Almroth Wright.

One of the principal subjects in the discussions of this conference was the differential diagnosis of tuberculosis, and the causes of the numerous errors in diagnosis, for it will be remembered that a very considerable number of men of the various forces were removed from service upon the mistaken diagnosis of tuberculosis, and this was especially true as regards the French Army. Dr. Biggs, the Health Commissioner of New York, after a visit to Europe to investigate the extent of tuberculosis there, and especially its prevalence in the armies, stated that 86,000 French soldiers had been returned to their homes with active tuberculous disease, and that by February, 1917, it was estimated that about 150,000 had thus been returned. Subsequent reexamination of these discharged soldiers revealed the fact that a very considerable proportion of them were erroneously diagnosed, and Professor Sergeant and Major Rist, who personally examined several thousand of these cases, estimated that the proportion of such faulty diagnosis might reach a total of 40% of all those who were retired with a diagnosis of tuberculosis.

Again, in England, Glover, of the Birmingham Sanatorium, found that the surprisingly

large number of 60% of his sanatorium patients sent in by first-class physicians were not cases of tuberculosis; and Webb, who quotes this statement, further declared that in his experience in our army, he found about the same per cent. of errors in diagnosis, although the examinations were usually made by careful men. Dr. Miller, of New York, says that in his tuberculosis service at Bellevue Hospital, as high as 20% of the cases admitted are not tuberculous. I mention these facts to indicate that a mistaken diagnosis of tuberculosis is not at all uncommon, although we all recognize the fact that the mistake of not making a diagnosis of tuberculosis when it exists is far more common. Furthermore, there must have existed certain symptoms and signs in these cases of erroneous diagnosis which suggested tuberculosis, and in many of them these misleading symptoms must have been connected with the respiratory tract. First, then, we have to consider some of those conditions, or diseases, of this region which simulate tuberculosis. Major Rist—and other authorities agree with him—states that among the frequent errors of mistaken diagnosis are chronic affections of the upper respiratory tract, such as nasal obstruction, causing chronic cough and symptoms of bronchitis or tracheo-bronchitis. There may be, also, diseases of the nasal sinuses, the tonsils, or a chronic nasopharyngitis, which may give symptoms simulating pulmonary tuberculosis,—as, for example, chronic cough, mucopurulent expectoration, and sometimes streaked sputum. On physical examination, there may be some lack of normal resonance at the apex, and what appears to be some modification of the respiration, probably due to deficient expansion of the lung. At times, moreover, there may be some acute symptoms when the patient may show a loss of flesh and strength. The differentiation from tuberculosis in these cases of upper respiratory diseases depends upon the fact that there is, as a rule, no constitutional disturbances indicating a general infection, such as rapid pulse, increased temperature, etc.; that the cough has existed indefinitely, with more or less morning expectoration, without serious effect upon the general well-being; that there are never any tubercle bacilli in the sputum, and that there are really no definite physical signs of apical disease. Therefore, to avoid the error of a mistaken diagnosis of tuberculosis from symptoms caused by abnormalities, or diseases of the upper respiratory tract, always examine this portion.

2. Influenza: The condition found at the time of or after an attack of influenza may simulate, and that very closely, an active tuberculosis. One must be sure, however, that the so-called influenza was really that (influenza), and not the beginning of a tuberculous infection, and again one must remember that an attack of influenza may wake up a sleeping tu-

bereulous infection. There is a conflict of opinion and experience as to how often this latter event happens, but, granting that the case was one of genuine influenza, we may have as a sequel, —cough with purulent expectoration, debility, frequently loss of strength, and certain physical signs closely simulating those of a beginning tuberculosis, namely râles and impaired resonance below the clavicle, but not above. There are not, however, the constitutional symptoms found in tuberculosis, such as tachycardia, fever, etc., and there are no tubercle bacilli in the sputum. Furthermore, recovery in a true case of influenza takes place in a comparatively short space of time. It must be confessed, however, that such cases of post-influenzal conditions are often very puzzling, and only time may solve the problem. Therefore, in all cases of influenza, frequently examine the sputum and keep the patient under close observation.

3. *Bronchitis*: The usual case of acute bronchitis is so well defined that there is little chance of error in its diagnosis. The local signs are bilateral and there is no evidence of any involvement of the lung substance. Râles, dry and moist, are found all over the lungs, but the moist râles are not, like the fine ones, found in an apex tuberculosis, and are usually heard over the bases; and here it may be stated, almost as an axiom, that whatever signs are found in the bases, the apices being clear, they do not indicate tuberculosis. Unilateral bronchitis is generally considered to be rare, but I have occasionally found a nest of comparatively fine râles in the middle or lower lobe which I have considered to be indicative of a localized bronchitis, as there was no evidence of lung involvement. Of course, when such râles are found in the base, it may be that they indicate a patch of broncho-pneumonia, but as regards the result, the differentiation is not important, for in either case they will in time generally clear up. As an illustration: A man, thirty-two years of age, consulted me with a history of having recently been in one of the hospitals of the city suffering from some acute respiratory disease, the nature of which he did not know, but from his account, it was probably a broncho-pneumonia. He had consulted several physicians before entering the hospital, and some made the diagnosis of pleurisy, while others that of bronchitis. Before leaving the hospital, a diagnosis of tuberculosis was made, and arrangements were instituted for him to enter a sanatorium. On examination, the only abnormal signs were a nest of fine, moist râles in the base of the left lung, but with no dulness over this area. The sputum was negative from several examinations. I felt obliged to disagree with the diagnosis made, and told the man that, in my opinion, he did not have tuberculosis, and that the signs which I found in his lungs would in time clear up, which they did within a few

months, and he subsequently remained well. Sometimes, however, these local râles persist indefinitely, but with apparently no effect upon the general health. Be it said, however, that far more cases of tuberculosis are diagnosed as bronchitis than is bronchitis mistaken for tuberculosis. Chronic bronchitis, as we know, has a history of cough of long duration, with more or less expectoration, but with little deterioration of the general health. The breathing may be harsh or broncho-vesicular, and there are dry and moist râles scattered over the chest. The moist râles, when they exist, are generally at the base and, according to the axiom above stated, physical signs at the base, without evidence of disease at the apex, do not indicate tuberculosis. Furthermore, the sputum is negative. There are, however, cases which simulate, in every respect, chronic bronchitis, which are, or do, become tuberculous, just as cases of pneumoconiosis, after a long period of dust breathing, develop tuberculosis. It is a wise precaution, therefore, to examine the sputum of all cases of chronic bronchitis, for it happens, perhaps oftener than we are aware, that a grandmother, for instance, with supposedly chronic bronchitis, will infect the grandchild with whom she is associated. I can recall at least one such instance. Calmette mentions the fact of the old nurse suffering with what was supposed to be chronic bronchitis, who infected, successively, three children under her care, all of whom died of tuberculous meningitis. Therefore, I repeat again, examine the sputum of all cases of chronic bronchitis.

There is a condition not infrequently met with, perhaps more frequently in children, which is designated by some as a chronic pneumonia, and by others as a subacute or chronic broncho-pneumonia. Tubercle bacilli are never found in these cases, but the most common microorganisms are the pneumococcus, influenza bacillus, and streptococcus. There is a history, often vague, of a slight or moderate illness, perhaps lasting but a few days, with marked cough and expectoration, and sometimes hemoptysis. After recovery from the acute symptoms, there generally remains a persistent cough, and on physical examination, one is surprised at the extent of the lesion. There is involvement of a part or the whole of the lobe, indicated by dullness, impaired or modified respiration, and an abundance of moist râles. The significant point is that this infiltration is practically always confined to a lower lobe. The x-ray picture which one would expect to show marked evidence of disease, either shows nothing at all, or some intensification of the normal bronchial shadows. The differential diagnosis of tuberculosis from this class of cases depends upon the absence of tubercle bacilli, the location of the lesion always at the base, and the absence of marked constitutional symptoms. Furthermore, the often rapid recovery

is opposed to the existence of a tuberculous lesion as extensive as the physical signs would indicate. In these cases, the physical signs may persist for several months, and as well, the cough and expectoration, but the general condition of the patient remains good all the while. Such cases as described above are, perhaps, more frequently diagnosed as tuberculosis than any other pulmonary lesion, and are not infrequently sent to the sanatorium. The following case is a good illustration of this class. A boy, fourteen years of age, whose mother had been a sanatorium patient, was referred to me to verify the diagnosis of tuberculosis made by his physician. There was a history of rapid loss of weight, and evidently a temperature of an indefinite period. The boy gave a vague account of some acute attack which, so far as could be determined, lasted but a few days. On physical examination, dulness and abundant moist râles were found at the left base. Otherwise the lungs were negative, as was also the sputum. The cutaneous tuberculin test was also negative, as was the intra-cutaneous, both to 1:1000 and 1:500 dilution. The x-ray, quite to our surprise, showed nothing at all in the left base. Indeed, that portion was the clearest part of the whole plate. At the last examination of the boy, his condition was rapidly improving, and his cough had disappeared. There was much in this case to suggest tuberculosis, especially as it has been taught that pulmonary tuberculosis in children may first be indicated in its local signs by a basic lesion—a statement which I am inclined to doubt. Furthermore, the general constitutional symptoms strongly suggested active tuberculosis. What the boy really suffered from was a low-grade broncho-pneumonia, leaving the condition in the left lung as described.

Bronchiectasis: This pulmonary condition is, in my opinion and experience, not at all uncommon, and can readily be mistaken for tuberculosis. In it you have cough, with purulent expectoration, not infrequently hemorrhage, often with marked physical signs, and clubbed fingers, which I have found much more frequent in this condition than in tuberculosis. As time goes on, there is a gradual physical impairment, loss of weight, shortness of breath, weakness, etc., although a moderate bronchiectasis may exist for many years without any appreciable deterioration of the general condition. There are not those marked toxæmic symptoms associated with such an advanced stage of tuberculosis as the physical signs would indicate. Indeed, after years of the existence of a bronchiectasis, a patient, as I have seen, may give the appearance of a fair degree of health. The physical signs are generally, but not always, confined to the base, and their extent and character will depend upon the size of the cavities and whether or not they are empty. There may be one or more cavities, and if the disease has

existed a long time, more or less disorganization of the rest of the lung. The cough is paroxysmal, with expectoration of large amounts of sputum which may be exceedingly ill-smelling. Posture, as leaning over when picking up something from the floor, will often precipitate a paroxysm of coughing and expectoration. The result of the physical signs is often inconclusive and will depend much upon the type of the disease, and the size of the cavity. The differential diagnosis is made from the kind of cough which is paroxysmal, the absence of tubercle bacilli after repeated examinations, and the frequent appearance of good health, even after the disease has existed for a long time. The lesion is generally situated in the middle or the lower lobe and, as has been said above, the fingers are frequently markedly clubbed. If the sputum is fetid, this is another evidence in favor of bronchiectasis, as fetid sputum is rare in tuberculosis. The x-ray is also of value in the diagnosis, for if the cavity or cavities are of any size they will appear in the x-ray picture. As an illustration: A woman was referred to me with a note from her physician saying she had a tuberculous cavity at the upper left chest, and desiring my advice as to treatment. The physical examination of the physician was perfectly correct, for the woman did have a cavity in the location indicated, and there was much disease in the rest of the lung; but she did not have tuberculosis, for the following reasons: She gave a history of having suffered from the disease for seventeen years, and of paroxysmal coughing and expectoration all this time, especially when she leaned over, with head down. Moreover, she appeared to be in tolerably good health, and the sputum was negative as to tubercle bacilli. If such extensive disease had been tuberculosis and had lasted so long, the general appearance which the woman exhibited would not, in all probability, have been present. Of course, paroxysms of coughing occur in advanced cases of tuberculosis, but then we have the other symptoms of advanced tuberculosis.—cachexia, wasting fever, etc. In the case of this woman, the bronchiectatic cavity was in the upper lobe—an exception to the general experience. The history, the character of the cough, and expectoration, the long duration of the disease, the absence of tubercle bacilli on repeated examinations, the healthy appearance of the patient, the clubbed fingers, the physical signs generally at the base, with the x-ray evidence, will generally make a fairly definite diagnosis. Although a person afflicted with bronchiectasis could live in tolerably good health for many years, genuine recovery, in my experience, is rare, and sooner or later the case succumbs. An illustration: A boy, fifteen years old, applied to the Boston Dispensary for cough and a pain in his chest. The cough had lasted two months and was accompanied by thick, mucopurulent

expectoration. The physical examination showed dulness and absence of respiration at the left base. The x-ray showed an apparent area of consolidation in the left base and also an area of consolidation along the margins of the spine at the left of the eighth to the tenth dorsal vertebrae. A diagnosis of abscess of the lung, or bronchiectasis, was made, and he was referred to the hospital for possible operation or artificial pneumothorax. While in the hospital, no definite cavity could be made out, but the x-ray suggested a basic formation considered to be bronchiectatic in character. A portion of the lower left lobe containing the bronchiectatic area was excised, followed with much shock and a long convalescence and continued discharge from the wound. On recent examination, the boy seemed very feeble and anaemic, and on physical examination, the whole left side was flat from top to bottom, and there was absence of tactile fremitus. In another case, with two bronchiectatic cavities where the sputum was most ill-smelling and offensive, irrigation was tried through the bronchoscope and also artificial pneumothorax. Both failed to produce any permanent relief, and the man died.

The following case is quite a remarkable one, both on account of the varying diagnosis and its course. It was in all probability, as events seem to prove, a case of bronchiectasis resulting from a pneumonia. At the age of nine months, the infant had lobar pneumonia. Later it was discharged to the Floating Hospital with a question of unresolved pneumonia, or tuberculosis. Later the child was transferred to a tuberculosis hospital with a diagnosis of tuberculosis, subsequently sent home as an "arrested" case. Again the child entered the State Sanatorium, and after several years spent there, was again admitted to the local Consumptive Hospital, and so it went on, until the child had spent $9\frac{1}{2}$ years of its life in the Sanatorium or Consumptive Hospital, with the diagnosis of chronic bronchitis, bronchiectasis, and far-advanced tuberculosis. The sputum had been consistently negative and, on a recent examination, there was marked dulness and modified respiration, with râles in the left lower lobe. The cough was paroxysmal and the sputum was very fetid. The general appearance of the child—now 12 years of age—was very fair. The diagnosis of bronchiectasis is undoubtedly correct, and there has been no definite proof that it ever was tuberculosis.

Pleurisy: We assert that a large proportion of pleurisy are of tuberculous origin, but I believe that we are not warranted in affirming that all are. Be this as it may, it is a fact that not a few cases of pleuritic effusion permanently recover after aspiration, and remain well for years. Of course, all cases of manifest tuberculosis are generally accompanied by some pleurisy. In an acute pleurisy, with effusion, we may have râles at the apex of the affected

side which may mislead us, but they may only mean adhesion, and disappear when the effusion subsides or is removed. Therefore, we should wait before venturing a diagnosis of tuberculosis until the effusion disappears. Again, after an effusion is removed or absorbed, the lung may be slow in expanding, and some fluid may remain indefinitely, and then the question arises, "Are we dealing with the result of a simple pleurisy or with one of a tuberculous nature?" The physical signs may be only those of a partially expanded lung or of fluid. The examination of the fluid, both microscopically and by animal inoculation, may be inconclusive. If the fluid is bloody, it may indicate tuberculosis. If the fever continues, it suggests tuberculosis; but on the other hand, the pleurisy may be of a tuberculous origin, if there is no fever. If physical signs are found at or toward the apex, it strongly suggests tuberculosis. If we cannot make a positive diagnosis from the evidence at hand, one can only wait and watch. It hardly seems fair to make a diagnosis of tuberculosis upon the general principle that all pleurisies are of a tuberculous origin. If they are, then some permanently recover without further tuberculous manifestations, as I have more than once observed.

Pneumoconiosis: The National Tuberculosis Association has for the last year or two been investigating, through a commission, the effect upon the lungs of dusty occupations, especially mineral dust, and Dr. Jarvis, of Barre, Vermont, has been conducting, for this commission, a notable series of investigation among the granite-cutters of his town by means of physical examinations and the x-ray. Some of his conclusions are, that most cutters do die of tuberculosis soon after middle life, but he considers tuberculosis as incidental and an end-result, the lungs previously having been wounded by the inhalation of the granite dust through a long series of years. In some cases, Dr. Jarvis found that when the granite-cutter had been removed from his occupation for a period of time the lungs clear up, as indicated by the x-ray. It is, therefore, not justifiable to make a diagnosis of tuberculosis because a man is, or has been, a stone-cutter, or has been exposed for years to other kinds of irritable dust. He may have a chronic cough, as he generally does, and other symptoms resulting from his occupation, such as dyspnea, or he may have abnormal physical signs, but these are generally confined to the base. Unless, however, tubercle bacilli are found in the sputum on repeated examination, one should be cautious in declaring the man tuberculous. There is evidently a period, more or less long, when the lung condition is a pure pneumoconiosis, and a later period when the tubercle bacilli invade the injured lung, and therefore the two conditions should

not be confused and a wrong diagnosis, in consequence, made.

Finally, Gas Inhalation: All of us who have much to do with lung examinations have had more or less experience with returned members of the Expeditionary Force who were, or say they were, gassed, and who are, or say they are, suffering from certain symptoms resulting therefrom. Undoubtedly, many of these symptoms are real and are practically incapacitating. In my limited experience, however, I have never been able to discover from physical examination in any of these gassed, returned soldiers, evidence of pulmonary tuberculosis, and that, I think, is the experience of most men. Some of them, undoubtedly, are suffering from chronic bronchitis, or bronchiectasis, which in time will probably improve, but that gas inhalation conduces to the development of tuberculosis, has not, I believe, in the experience of most observers, been demonstrated.

In conclusion, one final word with regard to the differential diagnosis of pulmonary tuberculosis: There are a certain number of cases of lung condition which can only be diagnosed after long and careful observation, and although there may be a certain amount of evidence pointing toward tuberculosis, it is unjust and often cruel to the patient to make a definite diagnosis of tuberculosis without good and sufficient evidence.

POSTDIPHTHERETIC DISSEMINATED MYELITIS, WITH REPORT OF A CASE.

BY HALE POWERS, M.D., BROOKLINE, MASS.

[From the Neurological Department of the Massachusetts General Hospital.]

IN view of the frequency of peripheral nerve involvement in diphtheria, it is probable that postdiphtheretic lesions of the central nervous system are not so rare as their infrequent mention in the literature would indicate. I have been able to find disseminated myelitis or sclerosis following diphtheria reported only seven times, therefore it is feasible to preface this report by a review of the literature of this form of myelitis.

At the present time usage is unfixed, so that by some authors the terms disseminated myelitis and multiple sclerosis are applied as though synonymous and interchangeable. Oppenheim applies the former term to "those cases in which all of the lesions have developed acutely," and the latter term to those cases in which the condition has been of gradual development. It seems better to regard disseminated myelitis as an acute or chronic condition that may or may not terminate in disseminated sclerosis, and to assume that all conditions of disseminated

sclerosis are the result of disseminated myelitis, either acute or chronic. This indicates a simple rule for the use of the two terms, the former being the more inclusive. The outcome of the case rather than its mode of onset, would then determine whether it be called myelitis or sclerosis, for myelitis may terminate either in recovery or in sclerosis.

In 1883, Pierre Marie published an article entitled "*De la sclérose en plaques chez les enfants*," and in 1884, "*Sclérose en plaques et maladies infectieuses*," an extremely important contribution. Marie said that Charcot had told him that in Germany the connection between *sclérose en plaques* and infectious diseases had attracted the attention of physicians. He refers to "the remarkable work of Kahler and Pick," who in 1879 "assigned for the cause, the action on the nervous centers of inferior organisms." He cites eleven cases following typhoid fever, three cases following pneumonia, two cases following erysipelas, one case following dysentery, one case following cholera, and one case following diphtheria.

This last case was reported by Stadthagen in 1883, but Marie had read only a review in *Centralblatt für Medecin*, and he seems to imply some skepticism when he says: "The author considers this affection as one of *sclérose en plaques*. We have been unable to consult the observation *in extenso* and are obliged to content ourselves with the analysis of the *Centralblatt*." In 1883, the year of the discovery of the Klebs-Loeffler bacillus by Klebs and the year previous to its isolation by Loeffler, Stadthagen reported his case under the title of "*Herdförmige Sklerose nach Diphtherie*," a nine-page article in *Arkiv für Kinderheilkunde*. The patient, an eleven-year-old boy, had diphtheria at the age of four, with paralysis of the palate and polyneuritis. He dragged the right foot and, later, the right arm became weak. Still later, bulbar symptoms developed and there were choreiform movements and intention tremor, and the gait was spastic. However, nystagmus and diplopia were absent, and here is the gap in the picture that I suppose made it, to Marie, unconvincing.

The second case was reported by Schoenfeld, Berlin, 1888; the third, by Schoenfeld, Berlin, 1888; the fourth, by Henschen, Upsala, Sweden, 1896; the fifth by Redlich, Wein, 1906 (or earlier); the sixth, by Ritter, mentioned by Oppenheim; the seventh, by Oppenheim, Textbook, and the eighth is the one now reported.

Pathological findings in this condition were first reported by Prof. S. E. Henschen of the University of Upsala, Sweden, in his article, "*Akute disseminierte Rückenmarks-Sklerose mit Neuritis nach Diphtherie bei einem Kinde*," *Fortschritte der Medecin*, 1896. The patient was a girl of fourteen who had all of the clinical signs of diphtheria during an epidemic of the disease. A culture from the throat seems

not to have been made. She was seen by Henschen a week after the onset and then complained of tingling sensations and other paresthesias in the lower extremities. Two days later, she could not walk without support. Patellar reflexes were at first increased and afterward lost. Ankle jerks, plantar and abdominal reflexes were also abolished. There was atrophy of muscles, including sterno cleido mastoids and trapezii. Accommodation was lost. Visual fields were contracted "in the upper half," and there was "hyperaesthesia in the lower half of the visual fields." Pupils reacted slowly to light, there was slight bilateral ptosis. Urine was retained and bowels were paralyzed. There was anesthesia everywhere below the level of the nipples. Thermal sense was lost in the lower extremities, also position sense and muscle sense. There was no response to Faradism in the lower extremities and diminished response in the arms. The Psyche was intact. After two weeks, motility began to return, so that, six weeks after the onset, motility of the right upper extremity is said to have been good and the lower extremities improving. Sensation was also improving, but the bladder and rectum remained paralyzed. Ten weeks after the onset, the patient contracted broncho-pneumonia and died. The pathological findings may be summarized as follows: Spinal cord, dura normal, pia normal. Surface of cord, macroscopically, normal; microscopically, areas of disseminated myelitis and of sclerosis. Myelin sheaths often destroyed and axis cylinders to a less extent. Proliferation of neuroglia cells. Destruction of anterior horn cells, grey substance elsewhere being unchanged. Thickening of vessel walls. No haemorrhages are mentioned. Dorsal and lumbar regions are much changed and cervical only slightly. Roots and peripheral nerves degenerated. Klebs-Loeffler bacillus not found in the tissue. "Diagnosis—acute disseminated sclerosis, with neuritis." "Such anatomical findings after diphtheria, seem not hitherto to have been made."

Redlich's case is reported in *Deutsche Klinik*, 1906. "*Ueber multiple Sklerose*," a very complete discussion citing many authorities. He concludes that heredity, congenital defect and psychic trauma are of little or no importance, and that acute infections are the usual cause, mentioning cases following typhus, variola, pneumonia, erysipelas, diphtheria, measles, scarlet fever, dysentery, cholera, influenza, angina, rheumatism, and one case of Spiller's in which aestivo autumnal malaria was the apparent cause. Then he refers to a postdiphtheretic case earlier reported by himself. This case first presented a typical diphtheretic polyneuritis, and in the course of a year, the picture of multiple sclerosis. He also refers to Henschen's case, and that of Ritter, whose case is mentioned by Oppenheim.

REPORT OF A CASE.

A boy, aged ten, came to the hospital on January 15, 1921. Family history and past history were negative. One month before, he had had a sore throat and his physician, although deferring diagnosis and not taking a culture, gave him 1000 units of diphtheria antitoxin, as a precaution. His present condition was said to have developed during this illness. At the time of his first visit to the hospital he was unable to walk without much assistance. His speech was indistinct. He had no headache and was not lethargic. He could not sleep well. For some time, fluids escaped from the nose when drinking, but he had recovered from this symptom. The sphincters had not been paralyzed. Examination—Development corresponds to age. Heart—Systolic murmur, transmitted to axilla. Rate 88. Rhythm regular. Tonsils diseased. Fundi normal. Pupils equal, regular in outline and react normally to light and in accommodation. Nystagmus—Lateral, with quick phase to the right, on looking to either side. No diplopia. Slight double ptosis. Ataxia present. Large error in finger-to-nose test. Romberg positive. Gait ataxic, with feet far apart. Some incoordination of upper extremities. Slight intention tremor. Adiadochokinesia. Knee jerks and ankle jerks absent. No lateral curvature of the spine. Keeps head flexed. Tactile sense normal. Vibratory sense normal. Mental state good. Culture from throat does not contain diphtheria organism. Diagnosis—disseminated myelitis and polyneuritis.

January 28th—General condition and gait improved. Nystagmus and ataxia still present. Accommodation weak. Speech still very indistinct. Says "mall" for ball, but after several attempts succeeds in saying ball. Cannot walk without assistance.

February 4th.—Much improved. Can walk without assistance, for a short distance. Diplopia on looking to either side.

February 14th. Left knee-jerk obtained. Right not obtained. Can now hold a full glass of water but still has some intention tremor.

April 22nd.—Still has nystagmus. Both knee-jerks are easily obtained, but right is less than left. Less ataxia. Tonsilectomy now advised.

October 14th.—Only a suggestion of nystagmus. Otherwise neurological examination is negative.

Henschen mentions early experimental work done by Enriquez and Hallion who, by injecting diphtheria toxin into dogs, produced haemorrhagic lesions of nerve roots and in the white substance of the cord. Henschen uses the word "toxin," but whether he means that they used toxin alone, or with living bacilli, I do not know, and I have not read the original report of these investigators. In 1895, J. Crocq, Jr.,

produced disseminated sclerosis in dogs in two ways: first, by inoculating them with diphtheria bacilli, and second by injecting the toxin alone. In more recent years, a number of workers have produced disseminated myelitis in animals by the injection of cerebrospinal fluid and blood from human cases intraventricularly, intraperitoneally and subcutaneously, and in some of the animals a spirochete, differing from the spirochete of syphilis, has been found.

Of the eight cases, our own is the only one in which antitoxin was given. The picture of disseminated myelitis was complete, but apparently in this case, myelitis has not terminated in sclerosis. As the early work of J. Crocq, Jr., demonstrated that toxins alone, without the presence of the living organisms, were capable of producing myelitis, it would seem possible to arrest the progress of a case by using the appropriate antitoxin, were we in possession of it. From Crocq's work we may infer that attempts to produce an active immunity by the introduction of toxins are contraindicated. Personally, I admit having tried this in two nondiphtheritic cases, and the condition progressed during the treatment, although an arthritis complicating one of the cases, improved.

As my diagnosis may be questioned, I would emphasize the following points: While not infrequently a polyneuritis will produce motor disturbances resembling the ataxia produced by lesions of the cord or of the cerebellum, these latter conditions are known to occur in diphtheria. I believe that it is possible for an experienced observer to distinguish between those disturbances of motor function resulting from the muscular weakness of peripheral neuritis and a true ataxia. Nystagmus of the type observed in this case cannot be accounted for by peripheral neuritis. That there has been complete functional recovery is not evidence that myelitis did not exist. In Henschen's case there was partial recovery, and in three cases of post-diphtheritic ataxia reported by Wilson in Archives of Neurology and Psychiatry, August, 1919, there was complete recovery in one.

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ABNORMAL MENSTRUAL HISTORY, FOLLOWED BY PREGNANCY.

BY CHARLES J. KICKHAM, M.D., BOSTON,

Obstetrician to St. Elizabeth's Hospital.

THE following history is interesting from a menstrual and marital standpoint, and the speculative diagnostic possibilities.

Mrs. S., aged 29. Married twice. Occupation, housewife. Family History—Father and mother well and living. Three sisters, all normal in regard to menstrual as well as general health. Past History—Usual children's diseases; otherwise well.

Present Illness—Patient had first menstrual flow at age of 13; this consisted of a "blackish fluid," which lasted about four hours. Her next menstruation came five years later at age of 18 and was of same character,—a "blackish fluid." One year previous to this, at age of 17, patient married. At age of 24 patient first consulted writer and came for examination to see why she "did not menstruate or get pregnant, like other girls." Previous to this, she had no menstrual periods, except as above, namely, at ages of 13 and 18; during these years she developed normally in general sexual characteristics, except that during the last five years she has grown "fleshy"; during this time she has had no nose-bleeds or other types of abnormal bleeding which might be construed as vicarious menstruation. Her general health has been excellent, except that she has noticed increased nervousness, with adiposity and that she "tires" easily.

Physical Examination in 1916.—Fatty type of woman, pale, acting as though under nervous strain. Eyes a little prominent but not protuberant; pupils equal and react to L. and D.; tongue protrudes straight but tremulous; teeth and tonsils good. No enlargement of thyroid made out. Skin soft and not dry. Heart—Sounds clear and regular but a little rapid; no enlargement. Lungs—Clear throughout. Abdomen—Examination difficult because of fat abdominal walls, but nothing abnormal made out. Vaginal—External genitals normal; vagina normal; cervix small, with pin-point external os; uterus small, of infantile type, with medium ante flexion; uterus freely movable and nothing abnormal made out in ovaries or tubes. On upper lip and chin considerable growth of coarse hair; also hair present over sternum and on lower limbs in large quantities. Voice high pitched and tremulous.

At this time patient was studied with care and was considered an example of endocrine disturbance, and as our knowledge of the endocrine system was even less five years ago than today, the exact type was in doubt; for the next six months patient was treated with thyroid extract, ovarian extract and corpus

luteum, and combinations of these and one or two other drugs, but all without effect. At this time patient became discouraged and desired some operative treatment as she felt that some "internal" trouble must be the cause. No operative surgical treatment seemed of value, but in my interne days it was not uncommon to dilate the cervix and sew in a stem pessary in an infantile uterus, with the hope that the stimulation of the foreign body might help the condition, and I therefore performed this operation, but, I am frank to say, with no faith in its value. The pessary remained in only two weeks and then was removed because of discomfort. Two weeks following the removal of the cervical pessary, patient flowed for six days, normal red blood, the first time that this had occurred in her life. Shortly after this date patient moved from this locality and was lost track of until March 15, 1921. On this latter date patient came to writer's office for examination as she "felt her abdomen getting heavy."

Her history from time of operation in 1916 to March, 1921, has been this: Since operation in 1916 she has flowed one week out of each year; the flow has been red blood and saturated about three napkins per day; the flow each year has been one week nearer the preceding year, as 51 weeks and then 50 weeks, etc. Two years ago, because of her sterility as well as other family reasons, she became estranged from her husband and a divorce was obtained. In April, 1920, she married again (this man of Greek nationality) and in June, 1920, had her regular yearly period of menstruation. Since that time has been well until the last two months, when she noticed increase in weight in lower abdomen which she thought was probably due to excessive abdominal fat. Examination on March 15, 1921, showed a pregnant uterus, with foetal heart sounds heard to confirm diagnosis (patient could hardly believe diagnosis correct). From examination diagnosis made, of about 34 weeks' duration, and expectant date May 1, 1921.

Patient went into labor on May 19, and delivered by forceps of healthy baby; patient and baby had normal post-partum period and were discharged in good condition.

Comment. The flow of "blackish fluid" at 13 and 18 years of age was probably an abortive attempt at regular menstrual flow, and she had, without question, an endocrine disturbance; but her flowing red blood following operation raises the question whether this was the result of operation or her treatment previous to this with glandular extracts, or possibly a combination of both. Her pregnancy after remarriage may have been due to sterility on part of first husband or supervirility on part of second, or possibly a coincidence. Why she should menstruate only one week out of every year is puzzling.

Current Literature Department.

ABSTRACTORS.

GERARDO M. BALBONI
LAURENCE D. CHAPIN
AUSTIN W. CHEEVER
ISADOR CORIAT
ERNEST M. DALAND
RICHARD S. EUSTIS
ROBERT M. GREEN
JOHN B. HAWES, 2D
JOHN S. HODGSON

FRED S. HOPKINS
CHARLES H. LAWRENCE
HERMAN A. OSGOOD
EDWARD H. RISLEY
WILLIAM M. SHEDDEN
GEORGE G. SMITH
JOHN B. SWIFT, JR.
WILDER TILESTON
BRYANT D. WETHERELL

SO-CALLED CONGENITAL DISLOCATION OF THE SHOULDER POSTERIOR SUBLUXATION.

TAYLOR, ALFRED S. (*Annals of Surgery*, September, 1921), writes as follows:

Since there is no case on record where in a birth palsy case a posterior subluxation of the shoulder has been found at birth—since obstetricians connected with three of the large lying-in hospitals of New York City have never seen a single instance of the association of the two at birth; since, after a search during seven years, the author has never been able to find posterior subluxation in any birth palsy case less than six weeks old—he is forced to believe that "congenital posterior subluxation of the shoulder" does not occur in birth palsy cases and therefore cannot be the cause of the palsy.

The term "congenital" should be discarded in this connection.

Since the author's series shows no dislocation present up to six weeks of age, but shows its presence in 77 per cent. of the sixty cases six weeks and more old, it is obvious that the dislocation is a sequel of the paralysis.

That the paralysis results from nerve injury is evidenced by these facts:

Nerve lesions have been found and resected in a large number of operative cases where they could not have been the result of injury to the shoulder. The area of cicatricial nerve damage was widely separated from the shoulder joint structures which appeared of normal texture except for the contracture in some of the anterior muscles.

The nerves were torn across, avulsed from the cord, or shredded and cicatrized.

Treatment of the dislocation is:

Preventive.—By maintaining correct posture and using physical therapeutics from the time of birth until the muscle balance is sufficiently restored.

Surgical.—Nerve repair when indicated, supplemented by the Sever operation when the dislocation is irreducible. These operations are to be followed by postural treatment and physical therapeutics until the muscle balance is sufficiently restored.

[E. H. R.]

THE VALUES OF THE VARIOUS METHODS OF BONE GRAFTINGS JUDGED BY 1390 REPORTED CASES.

MCWILLIAMS, CLARENCE A. (*Annals of Surgery*, Sept., 1921), says:

From 1390 bone graftings we find:

1. That there were 82.3 per cent. of successes with 17.6 per cent. of failures.
2. In the order of successes, we have:
 - a. With bone pegs, 95.8 per cent. were successful.
 - b. With the osteoperiosteal method (Delageniere), 87.3 per cent. were successful.
 - c. With the end-to-end method (without inlaying), 82.5 per cent. were successful.
 - d. With the inlay method, 80.9 per cent. were successful.
 - e. With the intramedullary method (Murphy), 76.6 per cent. were successful.

- f. With the combined intramedullary (at one end) and the inlay (at the other), 60 per cent. were successful.

3. The presence or absence of periosteum seems to exert no influence on the success of bone grafts. Proportionately, the percentage of successes without periosteum (82.3 per cent.) is the same as with (82.9 per cent.). In the end-to-end method, there were 18 per cent. more successes than failures without periosteum, and in the inlay method, 9 per cent. more successes without periosteum than with, while, on the contrary, with the intramedullary method, there were 13 per cent. more successes with grafts with periosteum than without. It is difficult to explain the cause of the differences in the various methods.

4. Suppuration occurred in 121 cases, or 8 per cent.; 32 per cent. of these succeeded. Suppuration is the most frequent cause of non-success of graftings, with insufficient immobilization and too short duration as the second most frequent cause.

5. The conclusion is reached that the most successful method of bone grafting is by the osteoperiosteal method (Delageniere). The bony defect should be filled in with small bone chips, and on one or two aspects, overlapping the ends of the fragments, covering in the bone chips, should be placed one or two strips of periosteum with adherent, osseous plaques, taken from another bone. This method is as applicable to large as to small bony defects.

6. The cause of many non-successes is due to defective immobilization, or to undue curtailment of its duration. From four to six months' immobilization is ordinarily required for complete success.

7. There is sufficient evidence to prove that the most effectual treatment of non-union of fractures is bone grafting.

8. The causes of failures of bone graftings, summarized, are:

- a. Improper method of grafting.
- b. Suppuration.
- c. Insufficient immobilization, or over too short a period of time.
- d. Fracture and dislocation of the grafts.
- e. Atrophy of the ends of the bone to be grafted.

9. The intramedullary method of grafting should be discarded.

10. Despite a few opinions to the contrary, bone graftings should not be performed in infected fields.

[E. H. R.]

THE BILIARY OBSTRUCTION REQUIRED TO PRODUCE JAUNDICE

McMASTER AND ROUS (*Jour. Exp. Med.*, XXXIII, 6, June, 1921).

The writers find that the bile ducts from three-fourths of the liver substance in dogs and monkeys can be obstructed without causing clinical evidence of jaundice. In the dog, nineteen-twentieths of the liver substance can be placed in stasis without the occurrence of tissue icterus such as regularly follows total obstruction. Always a local obstruction results in atrophy of the affected part with compensatory hypertrophy elsewhere.

The amount of biliary obstruction required to produce jaundice in humans is probably as great as in experimental animals, the writers believe. They state that the clinical jaundice encountered with local liver lesions should be viewed not as the result of local bile resorption, but as due to a general injury to the hepatic parenchyma or ducts, or to blood destruction.

[C. H. L.]

IS PAGET'S DISEASE OF THE NIPPLE PRIMARY OR SECONDARY TO CANCER OF THE UNDERLYING BREAST?

KILGORE, A. R. (*Archives of Surgery*, Sept., 1921), writes as follows:

From the point of view of intensive study of the condition, the term "Paget's disease" should be limited

to those lesions presenting the typical histology: (a) epithelial hypertrophy; (b) subepithelial round-cell infiltration; (c) Paget's cells.

All the cases of Paget's disease reported, however, as well as Case 5 and Martin's case (not true Paget's disease), emphasize the importance of removing the entire breast for any chronic, persisting nipple eczema or ulcer, regardless of the apparent presence or absence clinically of deeper breast changes. At operation, the decision for or against axillary dissection should depend, not on frozen section diagnosis of the nipple condition between true Paget's and other eczemas, but on the pathologic condition of the breast itself. The best procedure is amputation of the breast with a wide zone of skin, using the knife cautery in cutting across the lymphatics leading to the axilla, and proceeding immediately to the axillary dissection if any gross or frozen section evidence of cancer be found in the excised breast.

Three cases are reported demonstrating that Paget's disease is usually primary to cancer of the breast which has been found constantly in association with it. In one of these cases no change whatever had as yet occurred in the breast, and in two cases the early changes of what was probably duct carcinoma had begun when the breast was excised. A fourth case is reported in which all the evidence of history and pathology points to a reversal of this order, the cancer in the breast apparently originated first, and was followed by Paget's disease of the nipple. If the deductions in this case are correct then both schools in the controversy over the primary or secondary nature of Paget's disease have been right, since either order of events may occur.

Three stages in the process by which we believe cancer in the underlying breast develops Paget's disease are illustrated by the various cases reported. Figure 1 shows the condition, limited to the surface; Figure 3 shows the condition in course of extension down the ducts from the nipple, while Figure 4 is from a case in which the process had extended to the deep ducts. The picture resembles closely that of duct cancer. The final stage in which the cells plugging these deep lying ducts break out into the connective tissue and give rise to scirrhus cancer was not found in this series but has been observed by other authors.

[E. H. R.]

SQUAMOUS-CELL CARCINOMA OF THE URINARY BLADDER

SCHOLL, ALBERT J., JR. (*Archives of Surgery*, Sept., 1921), writes as follows:

Under certain conditions, such as trauma and infection, the mucosa lining the urinary tract undergoes extensive epidermization.

These areas of metaplasia, or, as they are termed, leukoplakia, have a predisposition to form squamous-cell carcinomas of a very high degree of malignancy.

Six cases of squamous-cell carcinoma of the bladder are reported; five of the patients died shortly after the disease was discovered.

[E. H. R.]

ACUTE PLEURAL EMPYEMA

WADE, H. (*British Medical Journal*, September 10, 1921), discussing empyema and its treatment, summarizes his opinions on this subject as follows:

1. A combined cytological and bacteriological examination of the fluid withdrawn should be more widely employed, as offering the prospects of affording fuller and more accurate data on which to found our operative treatment.

2. Suppuration within the pleural cavity is especially suitable for treatment by methods which obviate the necessity for opening the chest, or by methods where an immediate or early closure after it has been opened are carried out.

3. The value of the treatment by aspiration alone should be again carefully reviewed.

4. The value of methods where, after aspirating

the contents, an antiseptic is introduced, such as Murphy's method, where 2 per cent. formalin in glycerin is introduced, should be further considered.

5. Where simple drainage is practised, the ideal opening is not only one which allows free escape of the purulent content at the time, as when a rib is resected, but it should also be such as will readily seal itself off when the tube is withdrawn, as when minor intercostal thoracotomy is performed.

6. The benefits to be derived from a free opening of the pleural cavity by major intercostal thoracotomy warrant its employment in cases which give promise of developing into chronic and persistent cases.

7. The value of disinfection and immediate closure in these cases should be more fully tested.

8. The Rutherford Morison technique is the best at present available for carrying out the same.

[J. B. H.]

VISCERAL SYPHILIS

ALLBUTT, T. C. (*British Medical Journal*, August 6, 1921), discussing visceral syphilis with a special reference to that of the central nervous system and cardio-vascular system concludes his remarks as follows:

I. That the syphilitic process may be seen in little in the primary sore.

II. That wherever it be found it consists in a lympharthritis with consequential irritative and atrophic effects.

III. That the division of syphilis into time periods—as primary, secondary, tertiary, and visceral—is based upon superficial characters, and is misleading.

IV. That the pyrexial phase, slight as it may be, indicates a general syphilitic sepsis, in which the cerebro-spinal system is soon involved.

V. That early necropsies have shown that in the pyrexial phase the aorta, brain, liver, and other viscera become infected; and that the cerebro-spinal system does not long escape.

VI. That lumbar puncture should be made soon after the onset of the pyrexial phase, and the cerebro-spinal fluid tested from time to time parallel with the blood testing.

[J. B. H.]

INTUSSUSCEPTION: AN ANALYSIS OF THIRTY-SIX CASES

EDINGTON, G. H. (*British Medical Journal*, September 10, 1921), summarizes his investigations as follows:

1. Marked preponderance in males; frequency three and a half times as great as in females.

2. Majority (68 per cent.) of cases occurred in the first year, and of these the average was 6.15 months.

3. More than one-third of the cases were of the ileo-caecal (including caeco-ileo-caecal) variety.

4. Visible proof of etiology was not found at operation.

5. Death rate (40 per cent.) largely depended on length of interval before operation, and, secondary, to this, on gangrene; it was highest in ileo-ileal cases.

6. Resection gave invariably fatal results.

[J. B. H.]

THE PROTEAN APPLICATIONS OF ANTIGEN THERAPY IN PRACTICE

LYON-SMITH, H. L. (*The Practitioner*, August, 1921), is evidently a great believer in the use of vaccines and vaccine therapy in all known conditions even including diabetes. Among other diseases which he quotes as having been treated by himself with good results with vaccines he mentions rheumatic fever, pneumonia, pleurisy, bronchitis, otitis media, endocarditis, peritonitis, appendicitis, tonsillitis, laryngitis, pyelonephritis, cystitis, jaundice, puerperal fever, osteo-myelitis, dermatitis of various forms, impetigo, cerebro-spinal fever, typhoid fever, scarlet

fever, measles, mumps, boils, carbuncles, disseminated sclerosis, erysipelas, polyarthritis, pernicious anaemia. He admits that one of his two cases of pernicious anaemia has died although the other is still alive.

Among his recommendations as to diet which, were it possible to carry out such recommendation in this country, would be received with enthusiasm, is as follows: "Unless the patient strongly objects, good port or burgundy, or stout which is free from the acidity of secondary fermentations."

[J. B. H.]

A "COURSE" OF VACCINES

McKENDRICK, A. (*The Practitioner*, August, 1921), in a short article is apparently an equally enthusiastic believer in vaccines.

[J. B. H.]

ASTHMA AND ALLIED DISORDERS

ROLLESTON, H. (*British Medical Journal*, August 13, 1921), discusses the subject of asthma in a general way referring to the question of heredity and its relation to the onset of symptoms. He takes up the subject of acquired hypersensitiveness to proteins, the limitations of the skin tests and treatment. He emphasizes the importance of prophylactic treatment; in other words, the avoidance of the foreign proteins to which the patient is sensitized. He speaks of the difficulties of specific desensitization owing to the fact that patients show multiple sensitization. Failure may be due to several factors: bacterial infection may complicate pollen fever and a vicious circle result, each favoring the other so that before a cure it will be necessary to employ vaccine treatment for both these factors. He further discusses the various methods of non-specific treatment such as the use of peptone, etc., and finally takes up symptomatic treatment. He brings up the following points for further investigation and discussion:

1. Is all asthma, excluding cardiac and renal dyspnoea, due to hypersensitiveness, or is there a residue of true reflex asthma?

2. Is there a metabolic asthma due to auto-sensitization?

3. Is hypersensitiveness, apart from that due to injections of serum, ever acquired *de novo* and without an underlying inborn tendency?

4. What is the relation of asthma associated with bronchial or other infections and not giving positive skin tests to the more characteristic cases in earlier life? Are they acquired?

5. What percentage of normal persons who have never had any clinical manifestations of protein sensitiveness give positive skin tests?

6. Limitations of the skin tests. The reasons for failure—antigen unrecognized or altered in preparation; local sensitiveness; desensitization by an attack.

7. Treatment. Specific. Limitations of subcutaneous desensitization of alimentary sensitiveness. Non-specific peptone treatment.

These points are taken up by Freeman, Wallis, Coke and others.

[J. B. H.]

DETERMINATION OF THE BASAL METABOLISM FROM THE CARBON-DIOXIDE ELIMINATION

KING, J. T., JR. (*Johns Hopkins Hospital Bulletin*, September, 1921), describes his method of the determination of basal metabolism from the carbon-dioxide elimination and summarizes his article as follows:

1. The apparatus needed to collect and weigh CO₂ is simple and stable.

2. The method is "open." This prevents danger of possible respiratory infection, for which the "closed" methods have been criticized.

3. By weighing the CO₂ output one needs to make no corrections for temperature and barometric pres-

sure, such as becomes necessary in using volumetric methods of O_2 consumption.

4. The psychic effect upon the patient that accrues from this open method are as follows:

(a) He may be assured that he is breathing "fresh air."

(b) The moving spirometer and the buzzing fan, often part of the "closed" apparatus, may form an annoyance to the patient.

5. Statistical studies upon protocols of two groups of experiments with the Atwater chamber calorimeter show a somewhat higher coefficient of correlation between CO_2 and measured calories (plus .719 and plus .846 in the two series than exists between O_2 and measured calories (plus .488 and plus .836 in the two groups).

6. An analysis of 157 published observations upon gas exchange showed that CO_2 is either not "washed out" during the practical application of the basal metabolism test, or else it is "washed out" in negligible amounts.

7. Results of measurements of CO_2 obtained through the method suggested in the paper corresponded closely with those published by Benedict and associates.

8. The practical application of the proposed method has been satisfactory in several hundred observations upon all types of patients. The method should not be used in diabetes because of the altered respiratory quotient in that disease. [J. B. H.]

THE LOCALIZATION OF BACTERIA IN THE UPPER AIR PASSAGES: ITS BEARING ON INFECTION

BLOOMFIELD, A. L. (*Johns Hopkins Hospital Bulletin*, September, 1921), presents the results of an elaborate series of experiments concerning the localization of bacteria in the upper air passages and concludes that:

(1) Aside from the normal flora, bacteria do not, as a rule, grow free on the mucous surfaces of the upper air passages.

(2) Special conditions are necessary to account for the presence of foreign organisms—either a local infection, or a transient invasion. [J. B. H.]

THE SWELLING OF THE ARM AFTER OPERATIONS FOR CANCER OF THE BREAST—ELEPHANTIASIS CHIRURGICA—ITS CAUSE AND PREVENTION

HALSTED, W. S. (*Johns Hopkins Hospital Bulletin*, October, 1921), in an article with numerous excellent illustrations discusses this complication of the operation for breast cancer which he calls surgical elephantiasis. He does not come to any definite conclusions but makes certain suggestions in regard to the operative technique which he hopes will assist in preventing this difficult and annoying complication. [J. B. H.]

RENAL EFFICIENCY TESTS

MACLEAN (*British Medical Journal*, September 17, 1921) discusses the functions of the healthy kidney and emphasizes the importance of the estimation of blood urea and non-protein nitrogen. He describes the various methods for determining such estimations and makes a general survey of the various methods of examination of renal patients. [J. B. H.]

PROBLEMS PRESENTED BY HEMORRHAGE IN CONNECTION WITH OPERATIONS ON THE TONSILS

KELLY, A. B. (*British Medical Journal*, September 17, 1921) and others discuss the various problems presented by hemorrhages following operations on the tonsils. Kelly presents the statistics of serious and

fatal hemorrhages; O'Malley, J. F., takes up the conditions predisposing to hemorrhage in tonsil operation such as age, sex, menstruation, abnormality of the blood vessels, arterio-sclerosis, purpura, etc. Among prophylactic measures he mentions the use of calcium lactate, horse serum, human blood serum, hemoplastin, coagulose, adrenaline and others.

Tilley, Moore, McKenzie, Just, Barton, Woodman, Chubb and others take up the details of operative and post-operative technique, including posture and the various methods of anesthesia. [J. B. H.]

STILLBIRTH: ITS CAUSES, PATHOLOGY, AND PREVENTION

BROWNE, F. J. (*Edinburgh Medical Journal*, September, October, 1921), in an elaborate article discussing the subject of stillbirth, takes up the question of pathology and urges adequate antenatal supervision of every pregnant woman in order that the present high morbidity rate from cerebral hemorrhage be diminished and, in his opinion, in no other way can this high morbidity rate in cerebral hemorrhage be diminished. His ideas in regard to the prevention of cerebral hemorrhage as a cause of stillbirth are as follows:

(a) Avoidance of breech deliveries, by cephalic version of breech presentations at a period when this is always possible, viz., not later than the seventh or eighth month.

(b) Avoidance of difficult forceps deliveries; this is only possible by antenatal supervision of every case.

(c) Avoidance of induction of premature labour, certainly before eight months; better still, before eight and a half months.

(d) Manual dilatation of the parturient canal for the passage of the premature infant and preservation of the membranes unruptured as long as possible. We shall see later that the latter has also an important bearing on the question of infection of the newly-born infant.

In the next number (October) he further discusses the question of syphilis as a cause of stillbirth. He summarizes this subject as follows:

1. Out of 200 cases of stillbirth and neonatal death syphilis was the cause of death in 35 or 17.5 per cent.

2. In the presence of a history of repeated abortions, stillbirths or neonatal deaths, a diagnosis of maternal syphilis should be made, and treatment instituted even though the Wassermann reaction is repeatedly negative, provided other obvious and easily ascertained causes can be excluded, such as chronic Bright's disease.

3. A positive Wassermann reaction in these cases is very significant, but a negative reaction has little value, especially in cases of old-standing infection.

4. None of the cases had undergone adequate treatment during pregnancy.

5. In most cases histological examination of the foetal organs, especially the thyroid, thymus, lung and liver is necessary before deciding that a case is, or is not syphilitic. In the absence of a positive Wassermann reaction in the mother, and in the presence of a suspicious obstetrical history, histological examination will generally afford conclusive evidence. [J. B. H.]

DESCRIPTION OF AN ORGANISM OBTAINED FROM CARCINOMATOUS GROWTHS

YOUNG, J. (*Edinburgh Medical Journal*, October, 1921) in an article with numerous microphotographs brings up once more the question of a bacterial origin of cancer, summarizing his ideas on this subject as follows:

"From a considerable number of cases of carcinomatous tumors an organism with a specific life cycle has been isolated. The younger stage is minute,

being just recognisable under the highest power of the microscope. This phase is derived from a germination of "spore" forms and it grows best in a highly acid fluid medium. It would represent the stage during which the original infection occurs. This stage has not been cultivated separately, because it quickly passes into a somewhat larger phase (coccoid or bacillary, which grows well at ordinary temperatures when transferred to a plate medium. This phase passes into a comparatively large sporing phase, in which it may remain dormant for long periods. The investigations open up the possibility that the smaller phases may ordinarily be passed in the nucleus of the cancer cell. If this is so it becomes likely that the proliferation of the cells is due to the stimulus of the intranuclear parasite, and the continued and uncontrolled proliferation that characterises a malignant growth would thus be explained by the fact that the daughter nuclei carry with them one or more germs in the dividing or vegetative phase. Finally, a record of three malignant growths apparently produced in healthy mice by the injection of the cultures tends to support the belief that the organism may possess some etiological relation to tumor growths."

[J. B. H.]

SOME USES AND DOSES OF HYPNOTICS

WYATT-SMITH (*The Practitioner*, September, 1921) in a practical and useful article discusses the uses and doses of various hypnotics. The summary of his paper is as follows:

1. I do not believe there is any danger of producing an addiction to hypnotic drugs by their intelligent medical use.

2. Opium, and its products, should never be regarded as hypnotics.

3. The bromides are of little practical use as such.

(4. Bicarbonate of soda and night-socks have far better right to the title.)

5. Chloral hydrate is, perhaps, the most generally useful of the cheaper hypnotics; and is, probably, not very dangerous even in cases of fatty heart.

6. Paraldehyde is the best mere nightcap in mild cases, and is useful in a dose up to half an ounce with the first dose of some other hypnotic, such as sulphonal, to anticipate its coming into action.

7. Sulphonal is, except for its high price, the best of our hypnotics in that it is also a decided mental sedative. It appears to be quite safe in doses up to at least a drachm a day, given in divided doses of 30 grains n. and m., or, better, of 20 grains t. d. s.

8. Hyoscine is our strongest agent in a hypnotic emergency, and is quite safe up to a 1/50th, and probably up to a 1/33rd of a grain, hypodermically. It should be given an extended trial in acute delirious mania and in delirium tremens.

[J. B. H.]

THE SUCCESSFUL TREATMENT OF LEPROSY

ROGERS, L. (*The Practitioner*, August, 1921) discusses the treatment of leprosy by injections of soluble preparations of the fatty acids of chaulmoogra and other oils, and its bearing on the tuberculosis problem. He describes the use of chaulmoogra oil in leprosy, its chemical composition and its solubility in the various compounds. He then goes into the details of treatment and his results after four years' trial of this treatment. He presents his own opinion as to the value of his treatment as follows:

"There is thus no doubt that a very great advance has been made in the treatment of leprosy by my researches in Calcutta, and the more recent valuable extension of the work in Honolulu, which may well lead before long to actual cures of this terrible disease being obtained. Moreover, the hopes these advances hold out of effective treatment should prove of great value in attracting the more amenable early cases to the leper colonies which are about to be started in

India, and thus help in enabling more extensive segregation, with lessened danger of the continued spread of the disease, for comparatively early cases are frequently very infective through their nasal discharges; while they are particularly liable to remain undetected in positions making them a great danger to others, as, for example, through being employed in connection with food, etc."

[J. B. H.]

THE CAUSATION AND AVOIDANCE OF CEREBRAL DISTURBANCES IN LIGATION OF THE COMMON CAROTID ARTERY

FREEMAN, LEONARD (*Annals of Surgery*, September, 1921) writes as follows:

The great danger from cerebral disturbances in ligating the common carotid artery is universally recognized.

The accepted theory in accounting for this danger is that of anaemia, due to failure of collateral circulation arising from defects in the circle of Willis.

An apparently more rational theory, recently emphasized by Perthes, is that of thrombosis at the point of ligation, followed by embolism. This accounts for the suddenness of onset of the symptoms and the greater or less interval which precedes them. The preponderance of cases after middle life is explained by the greater brittleness of the inner coat of the artery producing ragged edges when divided by the ligature and thus inviting thrombosis.

If this latter theory can be substantiated by experience it will do away with much of the fear and hesitation of the surgeon when confronted by this comparatively simple operation.

In order to avoid injury to the intima, Freeman ligates his artery with a strip of fascia lata and only ties it tight enough to occlude the lumen of the vessel, but avoids crushing the intima.

HYDATID CYST IN THE LUNG.

FERRO, P. (*Fifforma Medica*, September 21, 1921, No. 38) reports two cases the clinical history of which resemble pulmonary tuberculosis and the diagnosis of hydatid was made only by the x-ray. In one case there were three well defined cysts, one in the centre of the left lung and two in the right lung. An exploratory puncture was made in the cyst at the base of the right lung, 20 cm. of clear fluid was removed and 50 cm. of turbid bloody fluid. There was injected into this cyst one cm. 1-1000 Corr. Sub. sol. following this there was marked rise of temperature, after 15 days the patient began to improve.

The second case proved to be at operation an hydatid of the liver. The hydatid in the liver had pushed the diaphragm up to 12 cm., giving the x-ray the appearance of a well defined cyst at the base of the lung. Complete recovery after operation on the liver.

Eosinophilia 6 per cent. and 5 per cent. respectively and positive complemental fixation test in both cases.

[G. M. B.]

SOME RESEARCHES ON THE PERIARTERIAL SYMPATHETICS

LERICHE, RENE (*Annals of Surgery*, October, 1921). The author presents a very interesting article on the nerve supply of the various coats of arteries, and has worked out an operation which is applicable in certain forms of trophic disturbances. He cuts down upon the artery and carefully decorticates it, thus severing the sympathetic nerve control which produces a dilatation of the arterial wall and hence improves the circulation. He shows two or three remarkable photographs of the healing of trophic ulcer after this treatment. This is a new procedure and in selected cases should probably be of great value.

[E. H. R.]

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THE AMENDED SHEPPARD-TOWNER BILL. S. 1039.

THIS Act is one of the most important measures relating to preventive medicine and medical practice recently adopted. It has been a storm center about which contests have been waged. Much has been written and said which reflected the personal reaction of the individual in the expression of opinions, bitter feelings have been exhibited and motives have been assailed; proponents have predicted the greatest benefits to humanity through the adoption of the Act, and objectors have claimed that dire disasters would result.

One group claims that the Act is unconstitutional, another contends that there is great injustice involved in the taxation features, and others feel that the practice of medicine will be revolutionized through an insidious attempt at state control or the so-called socialization of medicine.

Out of all these conflicting contentions, many on the side-lines fail to arrive at conclusions, but since the next step is the acceptance or rejection of the Act by the State, everyone should feel some responsibility. This obligation falls on the members of the medical profession above other classes of citizens, because physicians do, or ought to, know more about the need for public health legislation than the rest of the people. Some have carefully studied the Act and still feel confused about its advantages. Some

still think that the adoption of any measure involving the obligation of securing approval of details by a Federal body is open to question.

Although our State Department of Public Health, through Commissioner Dr. Eugene R. Kelley, feels that the State should accept the provisions of the Act, and the Speaker of the House, the Hon. B. Loring Young, may take the position that this Act is more workable than bills previously presented to the legislature for maternity benefits and infant welfare, the attitude of the State will be determined by the legislature.

Our president, Dr. Bartol, has repeatedly urged the physicians of the State to study legislative matters and to convey to members of the legislature information which each should have in order to act intelligently. Never before in the history of the Society has there been such a persistent effort to lead physicians of this State to use every opportunity for the dissemination of information of value to law-makers, and the future of public health measures depends, to a great extent, on the attitude of physicians.

The most appealing arguments against the Sheppard-Towner Bill will be the question of constitutionality, the fairness of the taxation burdens involved and the objection to national supervision of state activities. The question of constitutionality must be left to the courts. Taxation is a matter that concerns everybody. The arguments relating to this feature will be based on certain figures which have been published. Taking the population of Massachusetts, which is, according to the census, 3,852,356, and the revenue collected from Massachusetts in the fiscal year ended June 30, 1921, amounting to \$259,865,213.85, as a foundation, the argument proceeds as follows: The allotment to be matched will be \$30,982. The gratuity will be \$70,000 the first year and \$5,000 for the subsequent years. The tax for the \$1,000,000 Federal appropriation will be, for this State, \$56,553.91. The tax on the \$480,000 the first year will be \$27,145.88, and each subsequent year, \$13,572.94. The total cost to Massachusetts, including the state appropriation, for the first year will be \$114,681.70. The total cost in subsequent years will be \$101,108.85. The money loss to Massachusetts the first year will be \$42,717.79, and for each of the subsequent years, \$34,144.85. These figures are not vouched for by the JOURNAL, but have been published, and very probably will be used in debate.

The following states, territories and insular possessions will be losers, and will pay to help those which are the financial gainers: New York, Pennsylvania, Illinois, Ohio, Massachusetts, Michigan, California, Missouri, New Jersey, North Carolina, District of Columbia, Hawaii, Philippine Islands and Alaska.

The following states profit: Texas, Indiana, Georgia, Wisconsin, Kentucky, Iowa, Minnesota, Alabama, Tennessee, Virginia, Oklahoma, Louisi-

ana, Mississippi, Kansas, Arkansas, South Carolina, West Virginia, Maryland, Connecticut, Washington, Nebraska, Florida, Colorado, Oregon, Maine, North Dakota, South Dakota, Rhode Island, Montana, Utah, New Hampshire, Idaho, New Mexico, Vermont, Arizona, Delaware, Wyoming and Nevada. These figures are those which will be used by the opponents. From remarks made recently by Dr. Kelley of the State Department, it would seem that they may be inaccurate, and if so, the truth should be at hand, for if there are arguments without actual fact, the legislature may be confused and not act wisely.

The administrative features of the Act are confusing, for it is provided that a board shall be created, consisting of the Chief of the Children's Bureau, the Surgeon-General of the U. S. Public Health Service, and the U. S. Commissioner of Education. This Board shall elect its chairman and "*perform the duties provided for in this Act,*" but the Children's Bureau of the Department of Labor shall be "*charged with the administration of the Act,*" and further, under Section 13, the Children's Bureau shall perform the duties assigned to it under the "*supervision of the Secretary of Labor.*"

One may feel in doubt about the efficiency of these officials if the Chairman of the Board should happen to be the Surgeon-General of the Public Health Service, and under the law, with one other member of the Board, assume the responsibility of performing the duties provided for in the Act, and should not recognize the authority of the Secretary of Labor.

One needs to have confidence in human nature in order to expect harmony in these somewhat conflicting provisions for supervisory and executive functions. We must hope for good under the law, if accepted by the State, but our representatives should have the benefit of clear interpretation of the Act, and full understanding can come only through careful study of it. Discussion should not be postponed until the hearings before legislative committees.

THE ATTACK ON THE RED CROSS BY THE ANTIVIVISECTION SOCIETIES.

THE Committee for the Protection of Animal Experimentation has published a brochure in which, in addition to a compilation of articles from eminent men in practically all walks of life, relating to the good accomplished by competent investigators through the use of living animals, attention is called to the attack on the Red Cross by the antivivisectionists.

It is undoubtedly within the rights of any person to criticize any large public organization, but the criticism of the Red Cross by the opponents of animal experimentation is disgusting in that it is more than impertinent, for the statements show an utter lack of human un-

derstanding and appreciation of the functions of the Red Cross. Such ignorance and prejudice are rarely exhibited in print, and give evidence of a quality of reasoning sometimes advanced by debased or degenerate minds. Any person using the language employed, although technically able to use words, must have inherent qualities which, under other circumstances, would lead to distrust of mental or moral stability. These expressions are not the momentary weaknesses of a mind under irritation, but are put into print, using the term "A Hydra-Headed Menace," in referring to the Red Cross; and in speaking of the supporters of this great beneficent organization, calls them "Suckers," and all because the Red Cross appropriated money to be used in studying means to be employed in helping our soldiers in the great war through knowledge obtained by animal experimentation.

It is quite probable that the great amount of good accomplished by scientific medicine, and the support given by influential persons, will keep the legislature from interfering with existing privileges, but it is unpleasant to be obliged to use so much time and energy in combating ill-advised propagandists.

The only consolation is that publicity furnishes information to many who otherwise would never understand some of the benefits which have been supplied to the people. Every interested person should secure this little pamphlet, which may be obtained by writing to Mr. Thomas Barbour, of the Committee.

NEWS ITEMS.

NEW YALE MEDICAL BUILDING ANNOUNCED.—Definite announcement is made by the University Secretary's Office, that the Yale Corporation and the Sterling Trustees have determined to appropriate from the Sterling funds the amount of \$1,320,000 for the erection of a new and modern building to be known as the Sterling Hall of Medicine. With this purpose in view, the University has recently acquired the city block bounded by Cedar, Broad, Palmer and Rose streets, where the Dispensary now stands, opposite the New Haven Hospital. As one parcel of land was held at too high a price, the University has refused to purchase this parcel and will eventually build around it.

The announcement of the decision to erect a Medical School building follows recent announcements which have indicated an extraordinary development in the Yale School of Medicine. Through the reorganization of the curriculum, extensive changes in the Faculty, and a careful selection of students, it has been possible to bring about striking changes. An indication of the success of this reorganization has been found in the fact that of 450 candidates seeking admission for the present first-

year class, the School selected the 56 men who seemed the most promising material.

One of the outstanding features of the expansion of the Yale School of Medicine has been its closer affiliation with the New Haven Hospital and the Dispensary. In addition, the finances of the hospital have been placed on a stronger footing, and the physical rehabilitation has been begun.

Placing the Faculty of the Medical School on a University basis of full-time organization in the clinical service has been an important step in the consolidation of the work of the Medical School and the New Haven Hospital. With the beginning of the fall term of the present year, all four of the Clinical Departments of the School of Medicine have been placed on such a basis. A large number of changes have been made in the Faculty at the same time that Departments have been reorganized and added, with the result that the equipment and Faculty for both the preclinical and clinical years are now exceptional.

The Sterling Hall of Medicine will greatly facilitate the advance of the Medical School. It is hoped that to the Departments of Anatomy, Physiology, and Pharmacology and Toxicology, will be added, in the near future, a Department of Psychiatry. When these subjects have been carried out, all sections being housed together in modern buildings associated with a hospital of a capacity of 500 and the Out-Patient Department developing into a modern diagnostic clinic, the Yale Medical School is certain to occupy a permanent place among medical institutions in this country.

It is estimated that 151,000 died from organic diseases of the heart in 1920, in the United States, which is an increase of about 13,000 over the number in 1919. In Massachusetts, the rate was 195.2 per 100,000 population. Only one state exceeded the Massachusetts rate in 1920. That state is Vermont, with a rate of 228.5.

NOTES FROM DISTRICT SOCIETIES.

NORFOLK DISTRICT MEDICAL SOCIETY.—A regular meeting of the Norfolk District Medical Society was held at Masonic Temple in Roxbury on December 27, 1921. Dr. C. D. Knowlton presided. The paper of the evening was read by Dr. John H. Cunningham. He discussed the subject of prostatic obstruction from every angle, touching upon its cause, pathology, symptoms, sequence of morbidity and treatment. He discussed the various surgical measures of treatment and the prognosis, especially as related to the general condition of the patient. Dr. Quinby, in discussion, added several points in the symptomatology of enlarged prostate not usually associated with the condition.

The large gathering closed the evening with a substantial supper.

JOSEPH I. GROVER, M.D.,
Correspondent for the Norfolk District.

JOINT LEGISLATIVE CONFERENCE.

A MEETING of legislative committees representing Massachusetts, New York, New Jersey, Rhode Island and Connecticut, was held in Hotel Belmont, New York City, December 29, 1921, for the purpose of considering legislation of interest to the profession. This meeting was called by Dr. F. R. Green, representing the American Medical Association, and included the northeastern group of states holding legislative sessions in 1922. Massachusetts was represented by President John W. Bartol, Dr. James S. Stone, Dr. Edmund H. Stevens and Dr. Frank G. Wheatley. Plans were made to have annual conferences between adjoining states. The President states that the occasion was a pronounced success.

MINUTES OF THE SURGICAL MEETING OF THE SUFFOLK DISTRICT AT BOSTON MEDICAL LIBRARY, NOV. 30, 1921.

THE meeting was called to order at 8.15 P.M., by Dr. Bottomley, who presided. In the absence of the regular secretary, the Chair appointed Dr. D. F. Mahoney secretary *pro tem*.

Dr. Bottomley introduced as the principal speaker of the evening, Dr. William A. Downes, of New York, the subject of whose paper was, "Inguinal Hernia."

In introducing the speaker, Dr. Bottomley stated that many were of the opinion that from time to time we should be checked up on the subject of hernia.

Dr. Downes then proceeded to read a very interesting, scholarly and instructive paper on the subject of inguinal hernia. In the beginning, the speaker made a few statements, general and special, and then considered the anatomy of inguinal hernia in detail. Following this, the paper was illustrated by the use of lantern slides in which the author showed, more or less diagrammatically, the various steps of some of the principal operations in a radical cure. At the completion of the paper, the Chair called Drs. F. B. Lund, D. F. Jones and Lincoln Davis in discussion. Then followed general discussion, limited to five minutes each, by Drs. H. O. Marey, David Cheever, F. H. Lahey, E. A. Codman and F. J. Cotton. The discussion was then closed by Dr. Downes.

It was unfortunate that there was not a larger attendance at a meeting of such importance, as there were about forty present. The meeting adjourned at 10.20 P.M.

DANIEL F. MAHONEY,
Secretary pro tem.

TRANSACTIONS OF RESEARCH CLUB OF HARVARD MEDICAL SCHOOL. CATERPILLAR DERMATITIS.

DR. N. C. FOOT talked on "Some New Facts in Connection with Caterpillar Dermatitis" at a meeting of the Research Club of the Harvard Medical School, on December 16, 1921.

It is commonly believed that the caterpillars which cause dermatitis do so by reason of the mechanical irritation set up by their spines, which enter the skin and lodge there. However, that this is not so, was shown by Dr. Tyzzer, in 1907, when he demonstrated the presence of a poisonous substance in the nettling hairs of the caterpillar of the brown-tail moth.

Dr. Foot then mentioned the families containing urticating caterpillars, which are the Zygaenidae, Bombycoidea, and the Saturniidae. The caterpillars that are found in this vicinity with urticating properties, are the brown-tail moth, flannel moth, buck moth, saddle-back moth and the Io moth.

In general, the lesions produced by the urticating caterpillars are a dermatitis, conjunctivitis, or even a tonsillitis or bronchitis, etc.

The nettling hairs are readily detachable and do not necessarily need to be attached to a live animal. So the hairs can be carried a great distance by some means and yet be able to sting. Thus, dead caterpillars, moulted skins, and cocoons are just as dangerous as the live animals. There are also adherent nettling hairs. They may be smooth unbranched, barbed unbranched, or branched as after the manner of a fir tree. Each type of nettling hair has a corresponding poison gland situated, as a rule, at the base of the hair and which opens through a duct situated in the lumen of the hair which runs its entire length. The venom which these glands secrete has been studied by different people and thought, at times, to be a form of cantharidin by some, and formic acid by others. However, if the end of a broken hair be tested, the venom exuding will be found to be faintly alkaline. Dr. Tyzzer, working on this problem, found that heat killed its poisonous nature at 115 degrees C. It is not killed at 100 degrees C. The poison is easily removed at 60 degrees C. with water. Or it may be removed at room temperature with weak acids and alkalies.

The sting of the *Megalopyge opercularis* causes, locally, a zone of redness about the wound. Locally, there is heat, tenderness, burning, slight swelling, urtication and itching. There may be stiffness, pseudo-paralysis and pain in the hand or arm. In children one sees restlessness, fever and occasionally convulsions. Working with this same caterpillar, Dr. Foot found that he obtained reactions with the larvae, prepupal form, dead larvae and cocoons when rubbed on the skin. He did not find the same kind of a rash that is described by Bishopp. He found that the hairs on the legs of the caterpillar, the verruca-brush or tubercle on the cat-

erpillar, would react positively when applied to the skin. Also by taking a single hair and touching the base of it to the skin he secured a positive reaction. The ornamental hairs and the caterpillar juices reacted negatively.

In treating the dermatitis that resulted, he found that alkalies were no good. Antipruritics were good, and he found a cold cream particularly effective. For excoriated lesions, tincture of iodine or tincture of benzoin co. is good.

Dr. Foot then described the pathology of the lesions and illustrated his descriptions with lantern slides. He also showed pictures of the several different kinds of hairs and of the different caterpillars.

In describing his own work, Dr. Foot said that he found, as a rule, the venom appeared easily reduced. It seemed to be an albuminoid substance. Boiling whole caterpillars at 55 degrees C. for an hour, did not change the poisonous nature of the venom, but it does so if continued overnight. In extracting the caterpillar skins, the caterpillar is fastened on its back and the viscera removed as completely as possible. These skins are then rubbed up in a mortar with sand and extracted. The fluid extract is then centrifugalized and filtered. The crude extract is found to lose its power when put through a Berkefeld filter. But the active substance cannot be recovered from the filter.

Inoculations of varying strengths were then made on both man and animals. When injected into a mouse the animal roughened up its hair and had slow, deep respirations, defecated, and would flatten its flanks and arch the back and tail. It appeared to suffer intense irritation at the site of injection, for it would bite at its belly. There would be convulsions in the end.

On inoculation into a vein of the ear of a rabbit, the rabbit would have a slowing of the heart rate and would go into collapse or convulsion. Once when a vein was missed and the inoculation went into the surrounding tissue, there resulted gangrene of the ear. There were practically no symptoms after gastric administration to a guinea pig.

Experimenting on smooth muscle *in vitro*, he found that when the crude extract was added to a chamber in which the muscle was contracting rhythmically, one saw the base line of the writing lever rise. The contractions remained of the same magnitude, however. Soon the contractions increased and had a small second contraction superimposed on the larger. This resulted in summation and the writing lever would go off the drum.

Working on animals, he found that if they recovered from a dose of the extract, that they would not react to further lethal doses of the same extract. However, experiments on himself seemed to show an increasing reaction to repeated injections. But this reaction may have been due to some other thing in the solution than the extract.

From his experiments he came to the following conclusions:

1. The dermatitis is due to a coarse, colloidal, probably protein venom.
2. It is introduced by the spines breaking off in the epidermis.
3. The venom is probably secreted at the base of the spine and stored in the lumen of the shaft of the spine.
4. The clinical symptoms can be more or less imitated by experiments in the laboratory, on man and animals.

Obituaries.

ALBERT STONE GARLAND, M.D., a retired Fellow of the Massachusetts Medical Society, died at his home in Gloucester, November 28, 1921, at the age of eighty-one years, from heart disease. A graduate of Yale College in 1863 and of Harvard Medical School in 1866, he had practised medicine in Gloucester for fifty years. In 1908 his name was placed on the retired list of the state medical society.

EUGENE WOODBURY HILL, M.D. Information has been received of the recent death in Tacoma, Washington, of Dr. Eugene W. Hill, formerly of Boston and Newton. From 1901 to 1910 he was a Fellow of the Massachusetts Medical Society where he was consulting neurologist to the Newton Hospital and Superintendent of the Laurel Wood Sanitarium. Born in Brooklyn, New York, April 11, 1864, he graduated from the University of Maryland Medical School, served as house officer in the University Hospital and Bay View Hospital, Baltimore, and in an insane asylum at Albany, New York. After settling in Newton in 1901 he moved to Braintree the following year and from then to Allston, where he lived when he entered the Public Health Service in 1908. He served for six years in the Panama Canal Zone under Surgeon-General Gorgas, receiving the Roosevelt bronze medal and being vice-president of the Isthmian Canal Zone Medical Association.

When he returned to the United States he was appointed Government physician for the Blackfoot reservation at Browning, Montana, was government physician for the Cœur d'Alene reservation for three years and in 1919 was transferred as superintendent and physician of the Quinault reservation at Taholah, Washington, where he was taken ill.

Dr. Hill was an accomplished violinist, and in Boston had been a pupil of Bernard Listeman, Loeffler, and had studied with Percy Goetschius and at the New England Conservatory. He was a member of the Masonic lodge in the Canal Zone, and took the Royal Arch de-

gree in Colfax chapter, R. A. M. He was an honorary member of the American Legion and a member of the American Medical Society.

He is survived by his widow, Mary G. Hill, and two children.

Miscellany.

DEATH RATE IN BOSTON.

DURING the week ending December 24, 1921, the number of deaths reported was 237 against 179 last year, with a rate of 16.31. There were 27 deaths under one year of age against 31 last year.

The number of cases of principal reportable diseases were: Diphtheria, 71; scarlet fever, 38; measles, 47; whooping cough, 3; typhoid fever, 2; tuberculosis, 37.

Included in the above, were the following cases of non-residents: Diphtheria, 7; scarlet fever, 4; measles, 2; tuberculosis, 2.

Total deaths from these diseases were: Diphtheria, 5; measles, 1; typhoid fever, 1; tuberculosis, 21.

Included in the above, were the following cases of non-residents; Diphtheria, 3; typhoid fever, 1; tuberculosis, 1.

During the week ending December 31, 1921, the number of deaths reported was 214 against 229 last year, with a rate of 14.73. There were 27 deaths under one year of age against 39 last year.

The number of cases of principal reportable diseases were: Diphtheria, 67; scarlet fever, 52; measles, 51; whooping cough, 9; typhoid fever, 2; tuberculosis, 48.

Included in the above, were the following cases of non-residents: Diphtheria, 15; scarlet fever, 4; tuberculosis, 4.

Total deaths from these diseases were: Diphtheria, 4; measles, 2; tuberculosis, 7.

NEW AND NONOFFICIAL REMEDIES.

DURING December, the following articles have been accepted by the Council on Pharmacy and Chemistry, for inclusion in New and Nonofficial Remedies:

The Abbott Laboratories: Neocinchophen—Abbott.

Powers-Weightman Rosengarten Co.: Mercury and Potassium Iodide—P. W. R.

Schimmel and Co.: Oil of Cypress—Schimmel and Co.

E. R. Squibb and Sons: Liquid Petrolatum—Squibb; Food Allergens—Squibb; Pollen

Protein Allergens—Squibb; Animal Epidermal Extract Allergens—Squibb; Bacterial Allergens—Squibb.

Winthrop Chemical Co.: Chaulmestrol.

Nonproprietary Article: Chaulmoogra Oil.

Change of Agency: Cresatin.—The Council has directed that the description of Cresatin (New and Nonofficial Remedies, 1921, p. 94) be revised to show that the name has been changed to Cresatin—Dr. N. Sulzberge, and that it is manufactured by the Intravenous Products Company of America, Inc.

Yours truly,

W. A. PUCKNER, *Secretary*,
Council on Pharmacy and Chemistry.

Bromipin 10 per cent.—A bromine addition product of sesame oil, containing from 9.8 to 11.2 per cent. of bromine in organic combination. It acts like the inorganic bromides; but since it yields its bromine more slowly, it is thought to have less tendency to produce brominism. The dose is 4 cc. (1 fluidrachm), which may be increased in cases of epilepsy to from 8 to 30 cc. (2 to 8 fluidrachms). Merck and Co., New York (*Jour. A. M. A.*, Dec. 3, 1921, p. 1819).

Amylzyme.—An extract containing all of the digestive enzymes of the fresh pancreas of the hog. Amylzyme is sold only in the form of 2-grain capsules. G. W. Carnrick Co., New York (*Jour. A. M. A.*, Dec. 10, 1921, p. 1891).

Theobromine—P.W.R.—A brand of theobromine—N.N.R. Powers-Weightman-Rosengarten Co., Philadelphia (*Jour. A. M. A.*, Dec. 10, 1921 p. 1891).

Potassium Mercuric Iodide.—Potassii Hydrargyri Iodidum.—A complex salt, K_2HgI_4 , formed by the interaction of one molecule of mercuric iodide with two molecules of potassium iodide containing about 25 per cent. of mercury. As a germicide, it is effective, since it does not coagulate albumin. As a germicide, potassium mercuric iodide is used in concentrations of from 1:100 to 1:10,000. Solutions of potassium mercuric iodide may be prepared: (1) by dissolving one part by weight of mercuric iodide and one part by weight of potassium iodide in a small amount of water and then diluting to proper strength; (2) by dissolving potassium mercuric iodide in water containing potassium iodide, equivalent to about 20 per cent. by weight of the potassium mercuric iodide used (*Jour. A. M. A.*, Dec. 17, 1921, p. 1971).

Diphtheria Toxin-Antitoxin Mixture—Squibb.—Each cubic centimeter of the mixture represents 3 L+ doses of diphtheria toxin and three units of diphtheria antitoxin. For a discussion of the actions and uses of diphtheria toxin-antitoxin mixture, see New and Nonofficial Remedies, 1921, p. 282. E. R. Squibb and Sons, New York (*Jour. A. M. A.*, Dec. 17, 1921, p. 1971).

Oil of Cypress—Schimmel and Co.—Fritzehe

Bros., New York (*Jour. A. M. A.*, Dec. 17, 1921, p. 1971).

Xeroform—S. and G.—A brand of bismuth tribromophenate—N.N.R. Schering and Glatz, New York (*Jour. A. M. A.*, Dec. 17, 1921, p. 1971).

Theobromine and Sodium Acetate.—A brand of theobromine sodium acetate—N.N.R. Powers-Weightman-Rosengarten Company, Philadelphia (*Jour. A. M. A.*, Dec. 24, 1921, p. 2061).

PROPAGANDA FOR REFORM.

Quinidin in Heart Disease.—Quinidin has suddenly leaped into prominence because of its striking effects in certain forms of cardiac irregularity. It is to be hoped that the few favorable reports will not lead to the indiscriminate use of the drug in every type of irregular and rapid type of heart (*Jour. A. M. A.*, Dec. 3, 1921, p. 1822, and BOSTON MEDICAL AND SURGICAL JOURNAL).

Delano's Rheumatic Conqueror.—The state chemists of North Dakota analyzed this "rheumatic cure" some years ago and reported: "This preparation is essentially starch, with a small amount of talc, containing a little quinin coated with calcium carbonate" (*Jour. A. M. A.*, Dec. 3, 1921, p. 1838).

Butyn.—The Council on Pharmacy and Chemistry reports that Butyn is the name applied by The Abbott Laboratories to a new local anesthetic proposed for use in place of cocain in surface anesthesia in the eye, and for anesthesia of other mucous membranes. So far, however, the therapeutic value of Butyn has not been proved by adequate clinical trials. For this reason, the Council postponed the acceptance of the drug for New and Nonofficial Remedies, and published a preliminary report on Butyn for the information of those who wish to put Butyn to clinical trial (*Jour. A. M. A.*, Dec. 10, 1921, p. 1891).

Intravenous Specialties of the Intravenous Products Company of America.—This firm's list of specialties bears a striking resemblance to those of other "intravenous specialty" firms. Its endoarsen, like venarsen of the Intravenous Products Company of Denver, is stated to contain a cacodylate ("dimethylarsenate"), together with mercury and iodid. Venarsen was reported on unfavorably by the Council on Pharmacy and Chemistry in 1915. The inferior efficacy of sodium cacodylate and its worthlessness as a spirocheticide have been demonstrated. Like other "intravenous" firms, this company advertises the intravenous administration of drugs, such as sodium iodid and hexamethylenamin. The objections to and the dangers of indiscriminate administration of drugs intravenously was recently emphasized in a report of the Council on Pharmacy and Chemistry on "Some of Loeser's Intravenous Solutions" (*Jour. A. M. A.*, Dec. 10, 1921, p. 1912).

"The Alsaker Way."—R. L. Alsaker advocates a series of "Books that Teach the Alsaker Way to Health and Efficiency." Rasmus Larrin Alsaker was graduated by Bennett Medical College, Chicago, in 1910. Alsaker's book, "Curing Diseases of Heart and Arteries," seems to be the book that is pushed at present. The first part of this book contains certain elementary facts of physiology and hygiene that could be found in the ordinary common school textbooks on such subjects. The therapeutic phases of the subject are so treated that the average reader might well reach the conclusion that all physicians—except Alsaker—are either fools or rogues, and that from Alsaker alone flows the only pure, unadulterated, 100 per cent. medical knowledge. Alsaker's book may be counted on to have a very definite effect on the person who accepts its teachings. It may lead any patient who, because of an impaired regulatory system, is under the care of a physician, to abandon such rational means as the physician might recommend and attempt self-treatment (*Jour. A. M. A.*, Dec. 10, 1921, p. 1009).

Cod Liver Oil in Rickets.—While there is a growing belief that cod liver oil is of distinct therapeutic value in rickets, many of the experiments along this line are not sufficiently objective to be entirely convincing. Now, however, Park and Howland have furnished the direct ocular proof of the effects of cod liver oil on rickets which roentgenograms afford. (*Jour. A. M. A.*, Dec. 31, 1921, p. 2122).

MORTALITY FROM CANCER: 1920.

THE DEPARTMENT OF COMMERCE, through the Bureau of the Census, announces that nearly 100,000 deaths were due to cancer in the death registration area of the United States in 1920, and if the rest of the United States had as many deaths from this cause in proportion to the population, the total number of deaths from cancer in the United States for 1920 was 89,000, while for 1919 the number is estimated at 84,000, or 5,000 less than for 1920.

The trend of the cancer death rate is upward, the rate for 1920 being higher than that for any earlier year in 22 of the 33 states. The cancer death rate in the registration area in 1920 was 83.4 per 100,000 population, against 80.5 per 100,000 population for 1919. In comparing the death rate from cancer in one state with that of another, the Bureau uses "adjusted" rates in order to make allowance for differences in the race and the sex distribution of the population. Because, generally speaking, only persons in middle life and old age have cancer, so that a state with many old persons may be expected to have more deaths from cancer than a state with comparatively few old persons.

The highest "adjusted" cancer rate for 1920

is 98 per 100,000 population for the State of Massachusetts, and the lowest is 45.9 per 100,000 population for the State of South Carolina.

For a few states adjusted rates have been calculated separately for the white and colored population. In this group of states the highest adjusted cancer rate for the white population is 92.5 per 100,000 population for New York, and the highest rate for the colored population is 82.2 per 100,000 population for Pennsylvania. The lowest adjusted cancer rate for the white population is 47.6 for Mississippi and the lowest for the colored population is 38.5 for South Carolina.

Summarized briefly, the adjusted rates show that the Northern States have comparatively high, and the Southern comparatively low cancer mortality, while there is little difference between the adjusted cancer rates of the white and colored races of the same states. In other words, the white and colored races seem equally susceptible to cancer, but both races seem less susceptible in the South than in the North.

CHAULMOOGRA OIL AND LEPROSY.

THE U. S. PUBLIC HEALTH SERVICE has felt it necessary to prevent the too optimistic and extravagant claims recently appearing in the newspapers in regard to the curative effects of chaulmoogra oil derivatives on leprosy. While the use of the oil and of its derivatives has resulted in a considerable number of apparent cures, it is as yet too soon to tell whether these will be permanent.

The ethyl esters of chaulmoogra oil, the use of which has largely supplanted the oil itself, constitute a most valuable agent in the treatment of leprosy. In treating young persons and those in the early stages of the disease, the improvement has been rapid and striking; in older persons, and older cases, it is less so. Of the cases paroled from the leprosy stations in the Hawaiian Islands, so far, about eight per cent. have relapsed and returned for treatment. This was to be expected; and on the whole, the results have been so favorable as to make treatment of the disease hopeful. But only time can tell.

NEW U. S. PUBLIC HEALTH HOSPITALS.

BEFORE the year ends, the U. S. Public Health Service expects to add three more hospitals to the fourteen it has opened since January 1 last. It is also preparing nine other hospitals, four of which will probably be opened by May 1, and the others a little later. All of these hospitals have either been leased from private owners or taken over from the

Army or the Navy, the new construction authorized by Congress at the extra session not yet being well under way.

Hospitals put into commission during the last three months include the former Navy Hospital at Gulfport, Miss., with 150 beds; the hospitals at Jackson Park, Chicago; Colfax, Iowa, and Portland, Oregon; with a total of 350 beds; and the Edward Hines, Junior Hospital at Maywood, just outside of Chicago, with 1,000 beds. Those opened in December were the Fort McKenzie, at Sheridan, Wyo.; and one of the two buildings at Fort Logan H. Roots, Little Rock, Ark., with a total of 480 beds. The Navy Hospital at Las Animas, Colo., 750 beds, now operated by Navy surgeons, will be taken over as soon as a suitable Public Health Service Staff can be organized. These hospitals will increase the capacity of all service hospitals to about 22,600.

Hospitals planned to be opened for 1922 include the tuberculosis hospitals at beautiful Dawson Springs, Ky.; Excelsior Springs, Mo., and Rutland, Mass., with a total of 920 beds; the general hospitals at Fort Walla Walla, Wash., near the junction of the Coast wheat and fruit belts, and at Norfolk, Va., with a total of 1,240 beds; and the neuropsychiatric hospital in the Bronx, New York City, with 1,000 beds.

TABULATION OF CHILDREN'S YEAR WEIGHING AND MEASURING.

THE largest mass of data on the heights and weights of children under six years of age ever brought together in this country has just been made public by the U. S. Department of Labor through the Children's Bureau. The report entitled "Statures and Weights of Children under Six Years of Age," is based on records secured with the coöperation of individuals and organizations throughout the country in connection with Children's Year. Besides showing the present average heights and weights of the younger children of America, these records form a basis for measuring possible future progress in physical development. Of the 172,000 records tabulated, all of which met certain requirements as to accuracy and completeness, 167,024 were records of white and 4,976 were records of Negro children.

Boys under six years of age were found, according to the report, to average from one-third to one-half an inch taller and to weigh about a pound more than girls of the same ages. They were also heavier than girls of the same stature. California children were found to be slightly taller and heavier than other groups in the study—a difference for which climate or some factor other than the nationality composition of the population, which closely resembles that of other parts of the country, is held responsible.

The shorter stature noted in the New York City group, is, however, attributed to the presence in that group of a larger proportion than in the country as a whole, of short-statured races, such as the Italian and Jewish.

A selected group of children of native parentage showed very little deviation in averages height and weight from the averages of the larger group including both children of native and those of foreign-born parents. Children in rural areas slightly exceeded the average for city children in both stature and weight, while the heights and weights of Negro children under four years of age as compared with white children of the same ages, showed a deficiency in weight of 11 ounces for boys and nine ounces for girls, and stature deficiencies of two-fifths and one-fifth inches, respectively. These deficiencies, greatest at one year of age and under, may result from the poor nutrition and unfavorable social and economic conditions that cause a high mortality rate among colored infants, or, perchance, may be due to a racial difference in rate of growth. At five years of age, practically no difference in average height and weight is found between white and negro children.

STARVING RUSSIAN PHYSICIANS.

THE starving condition of Russian doctors in the famine areas, where their help is badly needed, is seriously interfering with a vitally important medical program drawn up by the American Relief Administration officials for the benefit of the hunger-stricken population. Cholera, typhus, malaria, dysentery and other skin and stomach diseases consequent on malnutrition, are rampant all through the Volga river basin, where 30,000,000 people are in acute need, if not in danger, due to the failure of last summer's crop. An absolute dearth of medical supplies at first hampered the work of the American Relief Administration, but a grant of \$3,000,000 in cash from the American Red Cross for the purchase of stocks, as well as a further gift of \$700,000 worth of surplus material, eliminated this difficulty. Now the call is for personnel which Russia herself can supply if only food enough can be found to keep the workers themselves fit.

"We urge consideration of the possibility of securing general relief in the form of food remittances for doctors," the American Relief Administration cabled recently from Moscow. "This is one of the most urgent needs to assist the general Russian situation. Telegraphic advice of general relief donations for this purpose, to make it as far-reachingly effective as possible, would have wonderful results."

These food remittances, which can be bought at the American Relief Administration offices, 42 Broadway, New York City, call for the delivery to designated individuals in Russia, of

ackages, each costing \$10, containing 117 pounds of nourishing food. This includes flour, rice, cocoa, sugar, cooking fat, tea and condensed milk, sufficient in each package to keep an adult well fed for one month. Should the honor in America not know of any individual to whom he or she wishes to send such a gift, the remittance can be made payable to general relief, the beneficiary to be chosen by the A. R. A. after personal investigation of his needs.

Already the Jewish Joint Distribution Committee, in reply to the A. R. A. appeal on behalf of doctors, has appropriated \$25,000 to be spent on remittances for their relief.

DOG BITES.

ALTHOUGH rabies is not a very common disease, if it is untreated, death is the usual result. A rabid animal may possibly transmit the disease during a period of ten days prior to the development of symptoms. The incubation period is usually from two to six weeks, but may be many months. Treatment after the onset of symptoms is rarely effective. All dog bites should be treated by a physician, and the possible dangers explained, but hysterical impulses should not be encouraged. It is unwise to have the offending dog killed, in the absence of symptoms of the disease, but rather to confine the animal and, if suspicious symptoms develop, have the dog killed and its brain examined. Keep in touch with the local board of health, and be prepared to employ antirabic treatment immediately if there seems to be any reason for so doing.

Discourage the treatment of dog bite by any person other than a physician. Many boards of health are issuing circulars of information relating to rabies.

MASSACHUSETTS SOCIETY OF EXAMINING PHYSICIANS.

At the meeting, December 27, of the Massachusetts Society of Examining Physicians: Dr. Ashburn summed up the discussion in favor of the original plan for organization by the following points:

1. State lines in New England are not as sharp as in other sections of the country, and while the plan proposed by Dr. Warner seems better suited to all sections it is quite possible that the original plan will be successful in New England.
2. The New England Hospital Association can be formed and made active at once and Dr. Warner's plan would take time to accomplish.
3. If the New England Hospital Association does not prove an unqualified success, or for any reason it seems desirable, the plan proposed by Dr. Warner can at any later time be

put into operation, through the existence of the New England Hospital Association, more easily than now.

The following officers for 1922 were elected: President, Dr. William P. Coues, Boston; Vice-Presidents, Dr. C. S. Benson, Haverhill; Dr. Wm. J. Brickley, Boston; Dr. Cadis Phipps, Boston; Secretary, Dr. Hilbert F. Day, Boston; Treasurer, Dr. R. C. Gwin, Boston; Council, Dr. Constantine Popoff, Haverhill; Dr. D. E. Brown, Brockton; Dr. Gaetano Praino, Boston; Dr. Andrew J. Cornwall, Boston; Dr. John E. McCartin, Boston. Chairman of Dinner Committee, Dr. J. H. Stevens, Boston.

By motion unanimously adopted it was made a policy of the New England Hospital Association to keep its qualifications for membership at all times identical with the qualifications for personal membership in the American Hospital Association.

ARE YOU DOING YOUR DUTY?

SMALLPOX has not been prevalent in Massachusetts of late years. In all probability a considerable number of children below the school age have not been vaccinated, and older people who have come to Massachusetts from other states may be vulnerable. In the routine of family visits the doctor could ask the question: Are you protected against smallpox? Tell the people of the Kansas City outbreak, with a mortality of 34.4 per cent. Illustrate by the following facts published by the Chicago Department of Health:

A mail clerk on the Santa Fe Railroad, running between Kansas City and Chicago, contracted smallpox in Kansas City a few weeks ago. He came to his home in Chicago and died of the disease a few days later. He never had been vaccinated. His wife is in the Isolation Hospital now with smallpox. She never had been vaccinated.

A fine young lady, eighteen years old came from Kansas City to visit friends at LaGrange, Ill., a couple of weeks ago. She came down with smallpox and died of the disease a few days later. She never had been vaccinated.

A wealthy business man, forty-two years of age, whose home is New York City, visited Kansas City on business November 17th. He came to Chicago, became sick with smallpox in a prominent Michigan Avenue hotel, November 30th, died in the Isolation Hospital December 12th, and was cremated the same day. He had never been vaccinated.

A little sore on the arm is much to be preferred to a zinc-lined box and a hole in the ground in a cemetery.

There were 1003 cases of smallpox reported in the United States for the week ended December 10, 1921.

Correspondence.

PEDIATRICS IN PARIS, 1920-1921.

Paris, Dec. 1, 1921.

Mr. Editor:—

In *L'Hôpital*, a bi-monthly French medical journal, October, 1921, there is an exceedingly valuable article by Dr. Germaine Blechmann, Chef de Clinique at the Foundling Hospital in Paris (*L'Hospice des Enfants Assistés*), entitled "French Pediatrics Since the War," a résumé of contributions by specialists in diseases of children during the past two years.

Under the caption, "Alimentation," Blechmann quotes from Professor Marfan, chief physician to the Foundling Hospital, that the hiccoughs of indigestion are due to over-rich nourishment, whether from breast milk or prepared foods. Marfan also believes that thumb-sucking may aid digestion by increasing the saliva, and that some form of hard and sterile "pacifier" probably satisfies a natural demand of teething infants and should not be prohibited (This with a sly dig at American pediatricists). Marfan also uses very simple formulae for the prepared food of babies whose indigestion is impaired; in diarrheal cases, a combination of buttermilk and rice water or barley gruel, or in cases of persistent vomiting he uses a weak solution of condensed or dried milk. Such vomiting, however, within an hour after meals, he often attributes to a neurosis of the stomach or to congenital syphilis, and treats the child accordingly. Prof. E. Weill, however, believes that such vomiting is a sign of anaphylaxis. He accordingly desensitizes the child by injecting under the skin of its abdomen a small quantity of food, whether breast milk or cow's milk, one injection of 3 or 4 c.c. often proving sufficient to cure most cases, even if the child has atrophies or desquamative dermatitis, due to its nutritional disorder.

Under another subdivision of his article, Blechmann takes up the subject of the use of vaccines in infants to cure pyodermitis. He quotes from the clinics of Professor Guinon and Weill that one or two injections of 250 millions staphylococcus have been found to cure mild cases of this disease, although for severe infections they use 50 millions every three days until the skin becomes normal. Vaccines are also used liberally in infants for the cure of cerebrospinal meningitis. Rochebois and others found that if subcutaneous injections of meningococcus vaccine were given, the results were better than with intraspinal injections. (This statement is corroborated in a recent article on the relationship of blood and spinal fluid, in the *Presse Médicale*.)

Another subdivision of this article is concerned with the pathology of fevers of apparently unexplainable origin. Armand-Delille attributes the daily elevation of temperature to latent tuberculosis, but other pediatricists look for slight inflammation in the nasopharynx, and there are others who consider the fever as due merely to nervousness or fatigue. Where, however, there is an inflammation in the nasal or respiratory passages, Nobécourt and others believe that the pneumococcus can usually be found, and they agree as to the necessity of isolating every pneumococcus patient. Here again vaccine and serotherapy are giving favorable results in nontubercular cases. Prof. Apert (*Hôpital des Enfants Malades*) uses a combination of antipneumococcal and antistreptococcal serum for his cases of broncho-pneumonia and whooping-cough. Under this treatment, deaths from whooping-cough have declined from 21 per cent. to 13 per cent., and from broncho-pneumonia there are 8 per cent. fewer deaths than under other treatment. He has not obtained favorable results from any form of vaccine or serotherapy in measles.

In all other cases of prolonged fever of uncertain origin, there being no otitis nor meningitis, and a

negative von Pirquet reaction, Marfan insists upon the blood-serum test for typhoid or paratyphoid, of which there are many cases in France at present, due to the long drought and infected drinking water. The prophylactic treatment of these diseases is strongly urged, as well as for diphtheria, and Marfan and Calmette even go so far as to predict inoculating babies and animals with some form of Koch's tuberculin against the almost universal scourge of tuberculosis. The toxin-antitoxin prophylactic for diphtheria is used by Weill-Hallé, and by Netter, intramuscularly, while Martin uses it subcutaneously, but all concur in sounding a warning against its use in asthmatic subjects.

In the treatment of whooping-cough, besides the rather doubtful value of vaccines and serums, several pediatricists are giving intramuscular injections of ether in olive oil (three parts of anesthetic ether to seven parts of sterile olive oil), in doses of $\frac{1}{2}$ to 2 c.c., repeating the dose every day for six days, and then, after a pause for five days, recommencing the series and continuing as long as is necessary.

With this cursory discussion of infants' diseases in general, Blechmann turns to the two scourges of infancy—syphilis and tuberculosis—which play a large rôle in France. Syphilis shows itself in the more or less extensive degeneration of liver, pancreas, parotid glands, involving all forms of digestive disorders and althrepsia, affecting the pleuropulmonary organs and bronchi with sclerosis, and resulting in nephritis and alterations of the ductless glands. The infection occurs before or after birth and appears with signs of myxedema, osteomalacia, chronic rheumatism, gigantism or dwarfism, and nervous troubles of all kinds. For these syphilitic infections, babies are treated, like adults, by injections of novarsenobenzol or sulfarsenol, or by inunctions or rectal suppositories of mercury. Frequently the injections of arsenic or preparations of mercury are made into the jugular or epicanial veins, a process not difficult after a little experience. Maternal syphilis is also "obstinately treated" during pregnancy and in the intervals between gestations.

As for tuberculosis, a thesis of Mlle. Mioche is quoted as showing that a new baby has 90 per cent. immunity during its first year. If, however, its antibodies are not sufficiently active, the disease is rapidly fatal, although the injections of the ether in oil seem to promise some benefit.

In closing this article, mention is made of the treatment of malaria, in infants, by intramuscular injections of formiate of quinine, in doses of .05 c.g. and of the treatment of asthma by adrenalin, serotherapy, peptonotherapy or vaccinations, depending on the cause, whether the asthmatic attacks are hyper-vagotonic or anaphylactic. For the treatment of convulsive diseases of children, Marfan and others are using luminol with excellent results. This drug is given in doses of 0.02 to 0.05 c.g., depending on the age of the child. Epilepsy and chorea seem to be yielding readily to this treatment.

All in all, however, the best work in France, as elsewhere, is in the department of puericulture. There are now clinics for mothers and babies in all parts of France; the foundling hospitals are being reorganized to permit of sending small groups of babies or children to the country, under observation and intelligent care; visiting nurses are being trained and employed by the government; and further, Prof. Marfan recommends establishing free restaurants for needy mothers who are nursing their babies and even beds and light work for such mothers as are indigent, where they and their babies may be under the care of competent physicians and nurses. Such is the goal toward which France is striving in order to insure a larger and healthier population, and I may add that American physicians who go to Europe to study, could do no better than to take their pediatric work in the various hospitals for children in Paris.

Among the best hospitals for the study of children's diseases in Paris, might be cited:

Hôpital des Enfants Assistés—Prof. Marfan, Dr. Blechmann.

Hôpital des Enfants Malades—Prof. Nobécourt, Prof. Apert, Prof. Lereboullet.

Hôpital Brétonneau—Prof. Guinon.

Hôpital Saint Antoine—Prof. Netter, Prof. E. Weill.

Inst. of Puericulture, Rue Desnouettes—Prof. E. Weill-Hallé.

At all the hospitals there is excellent surgery, especially that by Prof. Broca and his Chef de Clinique, Dr. Jean Madier, at the Hôpital des Enfants Malades.

KATE C. HURD-MEAD.

CHRISTIAN SCIENCE AND CANCER.

December 20, 1921.

Mr. Editor:

It has been brought to my attention that a public statement has been made, by one who speaks with authority among Christian Scientists, that patients suffering from cancer have been cured by Christian Science. My interest in this statement is due to the fact that a patient who was under my care some years ago, falls into this class. The facts are briefly as follows:

The patient had suspicious symptoms for a year, and during that year was operated on twice (curettage). When I saw her there was a large growth of the cervix uteri. Under ether, the mass was found to be movable in the pelvis, but radical operation was not attempted because, (1) the patient's general condition was not good; (2) the growth was very soft and apparently of a rapidly growing type; and (3) after curettage, the examining finger was passed through the curetted cervical tissue into the left broad ligament, where the peritoneum was reached but not punctured. Anatomically it was a border-line case and the contraindication to hysterectomy was the poor general condition of the patient.

The treatment given was thorough curettage of the crater-like cervix: cauterization of the crater with the Paquelin; packing of the crater with gauze soaked in one-half of one per cent. solution of formaldehyde.

The patient is now—three years and three months after the operation—clinically without signs of cancer. She says she is perfectly well. The cervix uteri is normal for a parous woman of about forty. There is a scar of laceration in the left side and some scar tissue in the left vaginal vault. The fundus is slightly enlarged and normal in position. There is no mass in the pelvis, no induration of the broad ligaments. The movements of the uterus are slightly restricted as if there had been some old inflammatory process. There is, clinically, no sign or symptom of cancer. The patient says she was cured by Christian Science, the symptoms undergoing gradual amelioration for about four months after the operation, when all symptoms disappeared, without recurrence to the present time. Treatment by Christian Science was begun while the patient was in the hospital.

There are several conceivable explanations, among which are: (1) the patient on whom I operated is not the patient whom I examined recently; (2) the tissue which was examined by a competent pathologist (Dr. F. B. Mallory, Boston City Hospital) and pronounced cancer is not the tissue I removed by curettage; (3) the pathologist made a mistake; (4) the patient still has cancer.

While it will never be possible to check up the second point, the others have been gone over most carefully, and checked up.

I have omitted discussion of many points which, while pertinent to the investigation, having been re-examined and determined, do not affect the argument and need not be specified in this summary.

The most obvious conclusion, then, that can be drawn, is that this patient who, over three years ago, had cancer of the cervix which was deemed ineradicable, is now clinically free from all signs and symptoms of cancer.

It is important to specify conclusions that may not be drawn from these facts, and this cannot be emphasized too strongly.

There is no ground for concluding that the patient is cured of cancer; not even the five-year period has elapsed. There is absolutely no ground for concluding that the patient was cured by any alleged therapeutic properties of thinking she was never sick.

But even granting, for the sake of argument, that the patient is cured, the cancer was curetted thoroughly, and cauterized, and treated with formaldehyde.

If Christian Science is to claim to cure cancer, it must show a series of cases cured of cancer. A single instance of alleged cure is not scientific proof. A single controlled experiment is proof only if it can be repeated indefinitely, thus constituting a series of individual cases. In each case, it must be shown that the patient had cancer. It must then be shown that no other treatment was used, except Christian Science. It must then be proved that each patient was cured. Finally, when the proof is complete up to this point, we must take into consideration the fact that spontaneous cure of cancer may occur, however rare it may be. Only a series of cases will meet this objection, in accordance with the laws of probability.

It is important to call attention to the close analogy between this individual case and some cures alleged to be due to radium. The patient is operated upon, radium is then used, and the claim of cure is made for radium. In this particular class of cases, there is no justification for such a conclusion.

There is, as far as I know, no case of cancer cured where Christian Science alone was tried.

Yours respectfully,

STEPHEN RUSHMORE.

520 Commonwealth Ave., Boston.

A NEW ASSOCIATION.

Shelburne Falls, Mass., Dec. 31, 1921.

Mr. Editor:

Your issue of this week has reached me, and I have read with interest Dr. Upton's letter under your title, "A New Association of Physicians."

It appears to me that Dr. Upton's letter deserves commendation in every way, and, furthermore, it would appear that his letter arrived just at the proper moment to precipitate a movement that has been smouldering for months.

Every active physician is being imposed upon in some way, and has been for some time, from one angle or another, regardless of whether he is practising in the larger centers or in rural communities. We have had no means of remedy, for lack of co-operative organization to back up our protests.

To the city man, there has been the hospital closed monopoly, and pauperizing free clinic, industrial and insurance physician and nurses.

In the country, we have the community nurses practising medicine, and lately, the Red Cross Society sending out its tentacles, commencing in the rural districts. Telephone companies have raised

their rates and put one over on us without hindrance, so that now, by decision of the court, we are classed, officially and legally, as a business and must pay business rates.

By adverse or unguided legislation, how many surgeons and physicians, for that matter, can feel secure when they go to bed at night, that they will not be mulcted out of thousands of dollars in the morning, by some blackmailing malpractice suit in the morning?

We, as surgeons and physicians, have many problems that could and would be easily solved without difficulty if we had a strong and fair organization back of us. Each and every one would benefit. Many problems would not arise at all only for the fact that we have no power behind us or our protests.

Such an organization in our State would of necessity spread to a national one. It is a conceded fact that any organization that we all can align up with must of necessity be handled from the standpoint of good and high ethics.

An organization formed now, in this State, would not create a precedent. Two or three years ago, in Germany, an industrial strike of national scope was nipped in the bud because the physicians threatened a counter strike. In Vienna, government meddling became so intolerable that the physicians gave twenty-four hours notice to rectify its ways, and the government hopped to it long before the time limit was up.

In London, Ontario, the local physicians have enjoyed, for years, a twenty per cent. reduction in telephone rates. Why can we not organize and rectify some of these things that are persistently dogging us? All that I can see that we have done is to let the legislature and everybody else kick us around to their heart's content.

Why not, Mr. Editor, let us get together somehow? As a suggestion, would it not be well for the physicians of the State, regardless of affiliations, to send in their names, saying they will join and support an organization, providing that one or more representatives from each district be brought together, furnished with all the available problems, and draw up tentative rules and regulations, and means of carrying out such rules, these rules to be submitted back to each one for his individual approval and suggestions? Suitable modification can then be made and the organization gone ahead with.

I would like to see some sort of activity in the way of a vote such as would be representative of the above suggestion.

A good solid vote might wake things up, without going much further.

Thanking you,

Fraternally yours,

W. A. HUTTON.

NOTICES.

NEW ENGLAND OTOLOGICAL AND LARYNGOLOGICAL SOCIETY.—The annual meeting will be held at the University Club, 270 Beacon Street, Boston, on Tuesday evening, January 24, 1922. The Annual Dinner, for which there will be a charge of \$4.00 per plate, will be served at 7 o'clock.

Program: The speaker of the evening will be Dr. George Fetterolf, of Philadelphia, Pa.; subject, "Tuberculosis of the Upper Respiratory Tract."

It is hoped there will be a large attendance.

WILLIAM F. KNOWLES, *President*.

GEORGE LORING TOBEY, JR., *Secretary*,
416 Marlboro St., Boston.

THE DE ROALDES PRIZE of the American Laryngological Association—a gold medal of the value of \$150—offered for the best original thesis upon a subject pertaining to Laryngology or Rhinology, is now

open for competition by non-members of the Association.

Theses must be in the hands of the Chairman of the Prize Committee prior to April 1, 1922.

D. BRYSON LAVAN, M.D., *Chairman*.
Address: 40 East 41st St., New York.

MASSACHUSETTS GENERAL HOSPITAL.—A clinical meeting of the Massachusetts General Hospital Staff will be held in the Lower Out-Patient Amphitheatre on Monday, January 16th, at 8 P.M.

Program:

1. A Case of Evulsion of Scalp, with Tropic Disturbances.—Dr. W. M. Shedden.
2. Report of Progress in Investigations of Shock.—Dr. M. A. McIver.
3. Results of Colectomy.—Dr. G. W. W. Blawster.
4. Tetanus.—Dr. R. H. Miller.
5. Open Reduction of Fractures.—Fracture Service.

Dr. Franklin G. Balch will preside.

Very truly yours,

FREDERIC A. WASHBURN,
Resident Physician.

THE CHILDREN'S HOSPITAL.—The visiting staff of the Children's Hospital will hold a Clinical Meeting in the Amphitheatre of the Hospital, Friday, January 13, 1922, at 4.30 P.M.

Demonstration of cases.

Physicians are cordially invited to attend.

BOSTON CITY HOSPITAL.—Staff Clinical Meeting. Cheever Surgical Amphitheatre, Friday, January 13, 1922, at 7.45 P.M.

Topic: End-results of Acute Injuries—Treated and Untreated—Follow-up.

Speakers—E. H. Nichols, M.D., F. J. Cotton, M.D., H. A. Lothrop, M.D.

Length of meeting—7.45 P.M. to 9.30 P.M. Refreshments afterward. Open discussion. Physicians and medical students invited.

DR. H. ARCHIBALD NISSEN,
DR. HALSEY B. LODER.

Committee.

Dr. William P. St. Lawrence, of New York City, will give an address at the Peter Bent Brigham Hospital, Thursday, January 19, 1922, at 8.15 P.M. His subject will be "Potential Cardiac Disease and the Development of Organic Disease of the Heart in Children." The discussion will be opened by Dr. Richard S. Eustis, and Dr. Burton E. Hamilton.

The meeting has been arranged by a committee of the Boston Association of Cardiac Clinics. All physicians and social service workers interested in the problem of heart disease are invited to attend.

WILLIAM H. ROBEY, M.D., *Chairman*,
PAUL D. WHITE, M.D., *Secretary*,
GEORGE P. DENNY, M.D.,
PAUL W. EMERSON, M.D.,
WILLIAM D. REID, M.D.,
RICHARD S. EUSTIS, M.D.,
BURTON E. HAMILTON, M.D.

RESEARCH CLUB.—The meeting of the Research Club, to be held at the Harvard Medical School, Amphitheatre in Building A, at 12.30 o'clock on Friday, January 13th, will be addressed by Dr. C. T. Brues, on "Certain Apparently Symbiotic Microorganisms in Scale Insects."

INDEX OF VOL. 185.

A complete Index of the JOURNAL from July to December, 1921, is being prepared and will be mailed later to every subscriber.

Index to Vol. 185 can be secured at the JOURNAL office by those who wish to have their JOURNALS bound.

The Boston Medical and Surgical Journal

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Original Articles.

OBSERVATIONS ON THE OPERATIVE TREATMENT OF EPILEPSY, WITH A REPORT OF FOURTEEN CASES.*

BY JOHN MASON LITTLE, M.D., BOSTON.

RECENTLY there has appeared a paper¹ adversely criticising the operative treatment of epilepsy, and saying among other things that "the results of operation, to say the least, are unsatisfactory;" but the benefit sometimes derived from operation has been observed and recorded for a very long time. Whatever the real meaning of the trephining which was done in pre-historic times, as shown for instance by the skulls in the collection in the Warren Museum of the Harvard Medical School, it seems not far-reached to suspect that this was done with therapeutic intent, possibly following observation of the results of accidental wounds received in battle. Taking these as a starting point there is continued evidence of attempts to cure epileptics by operations on the skull. There is evidence that these were regarded as beneficial in the cases where repeated trephinations were done as² in the instance quoted by Dr. Duncan Eve of Nashville, who in criticising a paper on "The Surgical Aspect of Epilepsy" reminded us that Chadburn was said to have trephined Philip of Nassau twenty-seven times for the relief of epilepsy. Coming

down to more modern days, it is evident that the subject has interested many surgeons and there was good reason to hope that, under the improved methods possible with anesthesia, asepsis, and cerebral localization, better results would be obtained. In looking over the literature, however, one is impressed with the fact that most of the cases cited are reported shortly after operation and that the claims made do not coincide with what seems to be the consensus of opinion as to the efficacy of operative procedure.

The discouraging fact is that the etiology of epilepsy is obscure and that we know so little about its real causes and pathology. The theories are many but cannot be proved. We know that many procedures or lines of treatment will ameliorate symptoms and seemingly cure, at least temporarily, some forms of epilepsy. Leaving out the medical and psychological factors we know that almost any operative procedure may have some effect. The result of operations such as³ amputations⁴, operations on the intestines, or⁵ operations on the pelvic contents in more recent literature are sufficient proof of this. The recorded cases of cure from various traumatic accidents, including severe burns, and the results sometimes of infectious disease are all proof that almost anything may seem to cure epilepsy. But in almost all these reports one would have liked to know the later histories of the cases. The enthusiasm of the surgeon should be tempered by such consideration but I see no reason why we should discount the evidence or the belief that operative

* Read before the Waltham Medical Society, May 5, 1921.

procedure may be helpful. Certainly we should not be restrained by timidity or by the safety which attends the conservative and medical methods of treatment. These are indeed well tried, and it is to be hoped that medical methods will in the future be found more efficacious than they are at present. On the other hand this pathetic and hopeless class of patients should not be denied any benefit which may be had from surgical procedure.

The subject of epilepsy is a fascinating one as the great amount of literature published in late years tends to show. The following quotation, slightly altered, from "Pagan and Christian Creeds,"⁷⁶ aptly fits the present discussion. "The great difficulty to-day in dealing with the subject, lies in the very mass of the material to hand, and that not only on account of the labor involved in sorting the material, but because the abundance itself of facts opens up temptation to a student in this department of study (as happens also in other branches of general science) to rush in too hastily with what seems a plausible theory. The more facts, statistics, and so forth, there are available in any investigation, the easier it is to pick out a considerable number which will fit a given theory. The other facts being neglected or ignored, the views put forward enjoy for a time a great vogue. Then inevitably, and at a later time, new or neglected facts alter the outlook, and a new perspective is established. The subject of epilepsy is complex, and yields many aspects for consideration. It is only, I think, by keeping a broad course, and admitting contributions to the truth from various sides, that valuable results can be obtained. It is absurd to suppose that in this or any other science *neat systems* can be found which will cover all the facts."

I intend in this paper to give the history of cases I have treated by operations upon the head for epilepsy, with such observations as occur to me. One of our difficulties in the discussion as to the worth of such procedure is that we have not the experience recorded in detail of a sufficient number of cases, nor their subsequent history for a long enough continued period, nor from men whose interpretations are not biased by early enthusiasm, or insufficiently prolonged observation. It is with the object of adding the evidence of some cases that the following are offered. The aggregate of many such reports, if honestly made, and if the cases are followed long enough, should enable us to clarify our views as to the operative treatment of epilepsy. I do not intend to discuss the various forms of epilepsy but shall report something of what has interested me in each case.

The following cases were done under somewhat unusual circumstances in that among the people where they were performed there is practically no other treatment possible, that

is to say, there is no institution whatever for the treatment of epilepsy or chronic disease of any kind; general knowledge and medical information are primitive, as are the habits as to food and general living conditions. In Newfoundland and Labrador it is practically impossible to treat an epileptic according to any rational medical ideas, so that aside from the giving of bromide without supervision, one is helpless. If a case came to me it had to be either condemned to its probably hopeless course or something immediate had to be done. Owing to this I felt justified in performing operations which would not perhaps be backed up by the conservatism of more advanced communities. I plan to report these cases, with the exception of three cases of the Jacksonian type, in the order in which they came to me, giving reasons for whatever procedure was adopted, and giving the result ascertained and the date that such information was obtained and how. I include at the end of the paper the tabulated list of such operative cases as I have been able to find in looking over the literature somewhat superficially back to the year 1906, together with the type of case, type of operation performed, reported result, and lapse of time after operation of the report.

CASE 1. (Hosp. No. 326) St. Anthony Hospital. Female, single, eighteen years of age. Admitted to hospital, March 25th, 1909. *Family History.* Her mother died of cancer. One brother died of tuberculosis. No history of alcohol or syphilis. *Previous History.* Except for scarlet fever and diphtheria in early childhood, the patient had always been well. The catamenia appeared at fifteen years of age and have been normal, but about the time they arrived she had her first attack of unconsciousness which lasted about an hour. In this attack she had no trouble with her hand and before this she had never had an attack of any kind whatever. Following this first attack she would have an attack about every month but not connected in any way with her periods. After these attacks her right arm would feel tired but her people had never noticed any contractions in it during the fits. About three years ago the attacks began to occur two or three times a week and her right hand was affected, the arm being drawn up and stiff. She had an aura which consisted in a "little aching, queer feeling" in the fore and middle fingers of the right hand. The attacks increased in number and severity so that they had been coming recently on an average every three or four days, and a year ago the right leg, and later the left leg and arm became involved.

Present Illness. Twenty-eight hours before I first saw her she had fallen on the floor of her own house and was found unconscious with her legs and arms in spasm. She was given an enema and ordered to the hospital, where she arrived twenty-four hours later in

the same condition. Two hours after reaching the hospital she recovered completely and seemed none the worse except for feeling a little tired. She was kept six days in the hospital without having a fit and was sent home but returned in six weeks, having had a series of like attacks though not so prolonged.

Physical examination showed her to be a well developed and nourished, bright, healthy looking girl. She is right handed. The chest, abdomen, and genitals normal. Reflexes normal. Eyes normal. Pupils regular. Ophthalmoscope showed normal grounds and discs. She seemed mentally rather above the average, being bright and sharp. Examination of shaved head showed no scars. No tender region on skull.

While in the hospital she would lapse into unconsciousness two or three times a day for periods of from five minutes to an hour. She would recover from these attacks and experience no ill effect except that she felt tired. As observed an attack was as follows: She was sitting up in bed, leaning against the pillows, and I was talking with her. Suddenly the fingers on the right hand twitched, her head fell back on the pillows, the eyes remained open but vacant looking. Her hand and arm on the right became rigid, and then the leg on the same side. All the muscles were affected, the arm being bent up and the leg extended. The pupils were equally dilated and very slow in response to light. I took her left hand, the one as yet unaffected, and asked her to squeeze my hand if she understood, and she did so. Then I asked her to move her left foot and she did so. I told her if her head ached to squeeze my hand which she did. I asked her to move her eyes, to stick out her tongue, to move her right hand and foot but she could not. I told her if she heard me to squeeze my hand twice which she did. After waiting a minute I asked her to squeeze my hand again but she did not. In a few seconds the left hand and arm became rigid and then the left leg. She was breathing quietly and her color was good. She remained thus rigid for about half an hour when she sighed and smiled at me. One could see that consciousness had returned. The spasm had left the left leg and arm but the right leg and arm were still in spasm. Asked if her head ached, she said, "Not now." She stated that she had heard and understood me in her fit even after she had lost power to contract the left hand, but after that she remembered nothing until, as she said, "My eyes began to see you again when I came to myself." No headache remained nor pain in the right arm which was still spastic, the right leg having now become normal. The spasm of the right arm remained for twenty minutes, then it suddenly left, and though she said she felt a little tired she felt no other ill effects. Such was a typical attack. There was a difference in the length and dura-

tion of the phases but she was having three or four fits daily which almost all became general. They all started with the queer sensation in the fore and middle fingers of the right hand and followed the same sequence. Owing to the increasing severity and frequency of the attacks and their focal character it was decided to operate. Operation was done on April 12th, 1909. Morphine Gr. 1/4 was given sub cu. before being brought to the operating room, where the topography was marked after measurement in the usual way. Light chloroform anesthesia was used. After scrubbing with soap and water followed by alcohol, an incision was made down to the bone with the idea of turning down a bone flap to uncover the motor area. A hole was made through the skull with a Doyen drill but as the skull seemed pathologically thick and very hard the plan was abandoned. The scalp flap was turned down and the opening in the skull enlarged with bone cutters. The dura was found very adherent and had to be carefully separated to prevent undue hemorrhage. The opening in the skull was made two and a half inches from before backward and one and a half inches from above downwards. There was bulging of the dura and no evident pulsation. The dura was opened by a crucial incision, the pia and brain beneath looking very wet and oedematous. No chloroform was given after the bone was removed. Stimulation of the cortex was attempted but we had only a hand made friction machine and, as I found later, the wrong form of electrode and no response was elicited. Over what I conceived to be the center of the arm area, the Rolandic fissure having been identified, I thought the brain tissue looked a little discolored. Explorations in all directions failed to discover any other pathology. The pia over the apparent discoloration was opened and the cortex examined both by sight and touch but nothing definite could be found. The brain cortex bulged a little through the opening in the pia and this bulging cortex I scraped away. I then cut the dura away to within a quarter inch of the bone edge all around the opening. Bleeding points in the brain substance were tied with very fine catgut. The brain was bulging by this time to the level of the outer table of the skull and pulsation had returned. There had been an escape of cerebro-spinal fluid. The skin flap was replaced and sutured with interrupted S. W. G. stitches, a small rubber drain being left at the lower posterior angle leading to the spot where the brain tissue was removed. The general condition during the operation had been excellent and there had been no muscular spasms. A pad was placed over the flap, dry dressing and bandage applied, and the patient put to bed in good condition.

The patient made a good recovery from the chloroform, vomiting only a few times, had

some headache, and passed a somewhat restless night. The following day the patient was in good condition; the right hand was partially paralysed. The dressings were changed, the wick being removed. On April 15th, three days after the operation, my notes show that the patient was on house diet with no headache and from that time convalescence was uninterrupted. The hand gradually lost all feeling of weakness, and by the tenth day, when the stitches were removed, all motions of the hand were well performed. The wound healed by first intention. Pulsation had been marked since operation with bulging in the decompressed area. The patient was kept in bed for four weeks and was given bromide grs. 10, three times a day. The scalp over the area where the skull was removed had gradually receded below the surface of bone and pulsation seemed normal. On May 8th the patient was walking around, very happy and bright, working as much as she was allowed to in the wards, and seemed well in every way, having had no suggestion of any fits or spasms. A week later she returned home with advice to continue the bromide for some time. On May 28th (forty-six days after operation) she was seen at the home of her brother where she was living and doing the housework, perfectly well in every way. In two years after the operation, during which period she had had no medicine except for the first two months, she appeared perfectly healthy and well. Her own statement was, "I feel a lot better. I don't feel my head bad the same as I used to. I haven't had the 'weakness' since the last two years. I haven't had no more attacks and I don't get tired so much." Her weight had increased from 97 lbs. to 109 and a half lbs.

Final Report. This patient has lived since the operation within eight miles of the Hospital. She has married and has two children. She has been seen at intervals by the doctors and nurses of the Hospital. During a period of six months in which she was a servant at the hospital, some two or three years after the operation, she stole from some of the hospital people. Whether this was a change in character it would be difficult to state but she has since then returned to her own environment and lived her usual life. My last report was from Dr. Charles S. Curtis, who saw her shortly before December 23rd, 1920, and who states that she feels well, her head does not bother her at all, and she has not had a fit since the operation. From the time of the operation to the time of this last report is eleven years and a half.

Remarks. The above case seems one of so-called Jacksonian epilepsy, with all the classical symptoms of well defined aura, the progressive involvement of different areas, continuing into a general attack, gradual progression in the number and severity of the attacks leading

up into status epilepticus, and it seemed hard to believe that a fatal result was not imminent. This is the type of case in which it is generally agreed that operation is advisable. Owing to poor electric equipment, localization could not be made at the time of operation and the operative procedure was somewhat blind. There was just enough evidence of local discoloration to indicate localized pathology. It is unfortunate that at the time there were no facilities for microscopic diagnosis. The surgical procedure consisted in the removal of some of the cortex in the supposed arm area and the removal of dura over a considerable area involving the motor cortex. That the localization, though seemingly so careless, was correct is proved by the paralysis of the right hand following the operation; that such paralysis will be completely compensated is proved by the subsequent history. That scar tissue of brain or motor cortex is not necessarily the cause of epilepsy, even where there is an epileptic tendency, is also demonstrated. That the removal of an indeterminate amount of brain cortex from the discharging area in Jacksonian epilepsy, together with complete removal of bone and dura over a considerable area, will cure Jacksonian epilepsy in some cases for a period of over eleven years, is demonstrated. The fact that there was edema of the pia and cortex with pressure in the brain cavity, as shown by the bulging, and the later recession of this area with return of pulsation demonstrates that there was a local pathological condition present and that this local condition can be changed by operation.

CASE 2. (Hospital No. 645). My second case, though not chronologically my second, is reported at this point because it is especially interesting in comparison with the one just described.

A school girl, eleven years old, was admitted to hospital, October 2nd, 1910.

Family History. Her father admitted venereal infection but denied syphilis. He admitted alcoholism in early life. The mother was living and well, had had five miscarriages, three children were dead, four were living but were not very healthy.

Previous History. She was perfectly healthy as a baby. At two years of age she had a sudden fever, on the second day of which she became paralysed on the left side. Recovery was complete in one month but during recovery there was a twitching in the left side. There was some indefinite illness at four years of age, the nature of which could not be made out. From then the patient had been a healthy child, normal in every way.

Present Illness. Fifteen months ago twitchings began in the left hand at intervals of from seven to eight days. Eleven months ago there was an attack of unconsciousness. The next day there was another major attack be-

ginning with twitching of the left hand followed by the left arm, followed by involvement of the left leg, and she became unable to speak, although her parents believed that she did not entirely lose consciousness. Since that time these major attacks have come sometimes as frequently as every two days, although there have been longer intervals. The tendency recently had been towards less frequent but more severe attacks in which unconsciousness was profound. A typical fit, according to the parents, began with a twitching in the left hand. This gave the patient at least one minute's warning. From the hand the twitching spread up the left arm. Thence it spread to the left leg and the left side of the face. By this time the patient would be apparently unconscious. The patient remained in this state, with convulsive movements of extremities on the left side, for five minutes, when the fit would suddenly terminate. The right side was never involved. There has been distinct mental deterioration, with obstinacy, loss of memory and so forth. She was having many minor attacks along with the major ones.

This patient was kept at the Hospital for study till February 20, 1911. During that time enlarged tonsils and adenoids were removed. She went through an attack of typhoid fever, recovered well, and helped around the hospital but had several major attacks in which she "twitched all over her body" and was unconscious, and many minor attacks of twitching of the hand. The major attacks became more severe as time went on, the spasms becoming tonic and the unconscious periods becoming longer.

Mentally this girl seemed above the average but she was undoubtedly 'odd.' No abnormalities physically were detected except astigmatism which was corrected by glasses. The fields of vision were contracted but our methods were open to criticism. The fundi were normal. There were no scars on the shaved head.

Operation was performed February 21st, 1911, with light chloroform anesthesia. A large flap of scalp was turned down on the right side and an attempt made to enter the skull with a Doyen burr. This and a second attempt were frustrated on account of hemorrhage but the third attempt was successful and the opening was rapidly extended with rongeur forceps, the skull seeming hard and riddled by sinuses. A cranial defect, three and a half inches by two over the motor area was made good. The patient was in shock and the flap was quickly sutured in place, and the patient returned to bed. She responded to treatment for shock and on the third day was in good condition for further operative procedure.

February 24th, she was very lightly chloroformed. The skin was wiped off with alcohol, the flap of scalp was turned back and the whole area irrigated with hot salt solution. The dura

was examined but nothing pathological found. The dura was opened by crucial incision. Pulsation of the brain was normal. The arm area had been calculated by measurement and what was supposed to be the Rolandic fissure was identified by the Farradic current. No abnormalities of the tissues were to be seen or felt. The dura was then further removed, and directly in front of the arm area, apparently involving the pia and cortex, and extending across a sulcus, was a whitish scar-like looking lesion. This was irregularly shaped of about the size of a postage stamp shading off at the edges. The arm and leg areas were mapped out by means of faradization and their limits were well marked. No response could be elicited from stimulation over any part of the scar tissue. Motion of the arm was obtained by the electrode placed anywhere behind the scar. I now copy directly from my notes in the hospital records, "It was directly on the edge of the area but did not involve it and any effect was by contiguity, not by direct action, unless the lesion went deeper than it seemed, and there was actual involvement of motor cells lying out of sight and reach in the sulcus. The lesion did not *feel* hard or to have any depth. It suggested a healed inflammatory lesion local in character, rather than any new growth. There seemed no indication for excision of the lesion. The lesion being near but not in the area that was originating the nervous discharges, and no special part of the arm area being visibly affected, and the good results often resulting from decompression alone being considered, it was thought wiser to attempt nothing further at this time. So the dura was removed to within one quarter inch of the bony edge all round. There was some hemorrhage which was, however, easily controlled. A rubber wick was laid across the opening and the flap of scalp sutured in place, a couple of chromic gut stitches being first taken in the pericranium." The usual dressing was applied and the patient gotten to bed in good condition. The drain was removed at the end of twenty-four hours. She vomited once or twice but complained of no headache. The wound healed by first intention. Pulsation was marked in the depressed area. Three days after operation the patient had a fit of the usual severity. By May 20th the patient was up and around the hospital. She had two attacks after the operation, general in character but very short, and had none for the next six weeks when she was sent home. I again copy from my notes in her record: "Have offered further operation if the fits are not pretty well controlled; my idea being, if she is going to be much affected by them, it would be advisable to remove the anterior part of the cortex corresponding to the arm area as shown by faradization, *i. e.* that part next the lesion."

Report. I heard by letter from her mother in May, 1912, that she did not have fits so often, generally going a month without one. I have a letter written to me by the patient, February 8th, 1920, in which she says, "Well, I enjoy the best of health. I don't have the fits so bad as I did. Sometimes I go three or four months. But when I have them it will be six times the same day. But the last time I had them I only had the fit once. I am much better than I was and I expect for it to wear away as I get older. I don't believe the operation did me anything. I don't have it half as bad as when I was a youngster so I believe as I get older that I will get better. When I don't have these attacks I feel healthy enough."

Remarks. This patient, with a questionable family history, had a severe illness at two years of age causing temporary paralysis of the left side. Roughly, at nine and a half years of age, after previous perfect health, she developed twitching of the hand on that same side. These attacks gradually increased, involving the whole side, until she had, besides minor attacks, many attacks of severe general epilepsy. Mentally this bright girl had become 'odd.' The outlook seemed dubious and at operation a healed scar was found involving the pia and cortex just in front of the motor area of the arm. The question arises as to the proper procedure. It seems unreasonable to try the removal of so great an area of tissue as the scar involved, although probably this was the origin of the fit. It does not seem that, if this was the origin of the irritation, the mere removal of the motor area first involved, that is, the discharging area, was clearly indicated. Previous experience (Koehler and others) has shown that decompression alone is often followed by favorable results so this alone was done, further operative procedure being held in reserve. The result has not been entirely satisfactory as the fits have continued but after a period of nine years the patient can say that there is a continued improvement, and from her letters she appears to be leading a happy life. One cannot say what the outcome would have been without operation nor how much the operation has been the cause of the betterment. If in this case in which a definite pathological lesion was found contiguous to the discharging motor area and in which simple decompression probably prevented progression of the epilepsy and enabled improvement to take place, it is suggestive in connection with the last case (No. 1) where there were very different findings, procedure and result.

CASE 3. (Hosp. No. 768). My third case was a fisherman, aged twenty-three, admitted to hospital, September 10, 1914.

Family History. His father died of consumption.

Previous History. The patient had always been well and strong.

Present Illness. Two days ago, while this young man was out fishing in his boat with some comrades, they noticed that he was making signs to them as if he wished to go home and could not speak. He was taken home and put to bed and it was noticed that his right arm was paralysed. His right leg shortly became paralysed and four or five hours later he became unconscious and vomited. This vomiting continued intermittently until he was seen by a medical student on the next day in the afternoon. The patient was conscious at that time but unable to speak, although he seemed to understand what was said to him. He had right hemiplegia. He was brought to the hospital that night, and the next morning, the condition being about the same, an operation was done for probable meningeal hemorrhage. At operation, the usual flap was turned down and on opening the skull there was a brisk flow of old, dark blood. When this was stopped there was found to be spurting from a branch of the middle meningeal artery and this was tied. It was noticed that his breathing became better and that he could move his right arm. The brain was now pulsating so the flap was replaced, a rubber drain being left in the angle of the wound. The patient made an uninterrupted recovery. The optic disc on the right, which had shown marked signs of neuritis, quickly cleared up, and he soon regained the use of his arm, leg, and face. The right hand, however, remained somewhat spastic and his speech did not become perfectly plain.

A month after he returned home this patient began to have fits. They started with a smarting pain beginning in his right cheek and extending down his arm. The patient would lose consciousness and go into clonic spasms all over. He had these fits about once in two weeks and sometimes two in a day.

On June 24th, nine months after his previous trouble, he returned to hospital where one of these fits was observed and reported as follows. He announced that he had a pain on the right side of his face and that he was going to have a fit. He was put to bed and began to tremble all over. The right arm stiffened and the patient became unconscious. The convulsion lasted three or four minutes and left the right arm and leg limp but five minutes after the general convulsion was over the patient got out of bed and walked to the bathroom.

On August 9th a decompression operation was performed over the motor area on the left side. There was found considerable bulging and edema of the pia and cortex, otherwise nothing abnormal. An area of bone, two inches by two and a half, was removed, the dura being turned back over the bone edges and the scalp sutured back in place.

At the first dressing, when the wick was removed, it was noticed that there was bulging

over the decompression area and pulsation was visible. The movements in the arm had improved but there had been two severe convulsions. The spastic condition of the hand seemed to improve. There seemed to be bulging over the decompression area at times and at such times there would be headache. Twice with a needle, two and a half ounces of straw colored fluid was withdrawn with subsidence of his headache and, as we thought, the warding off of a convulsion. By September 21st, the patient seemed much improved and had not had a convulsion for six weeks.

I saw this patient at intervals for three years. He regained the use of his arm sufficiently to go fishing. He was seen in September, 1920, by Dr. Curtis, who said, "He has an attack about once a month, he still has some weakness and spasm of the arm. He says the attacks begin as before with the spasm in the arm, then a general convulsion." He is, however, able to work, go fishing and support himself.

Remarks. This patient, for no known reason and, so far as could be made out, with no trauma, had an extradural hemorrhage from a branch of the middle meningeal artery. He could not be brought to hospital for operation until three days had elapsed when, by operation, the old blood was removed and the bleeding vessel tied. His paralysis cleared up considerably but there was evidence of damage to the cortex as shown by the spastic condition of the hand and disturbance of the speech center. One month after his return home this patient began to have Jacksonian epilepsy of the typical progressive type. In the hope of relief a decompression over the motor area was done. The often observed tension and edema of the cortex were remarked. There was relief at once with improvement in the condition of the arm and speech. There were accumulations of fluid in the decompression area which were tapped with relief of the headache and it seemed as though on-coming convulsions were aborted. This accumulation of fluid stopped, suggesting that drainage was effectual. After an interval of two years fits of lesser severity came on and there has always remained some spasticity of the hand but the patient has been able to support himself in the usual way of the country by fishing and logging. By this drainage having been done, it seems as though progressive advance of the epileptic seizures had been prevented and the general condition as to comfort and usefulness of the patient very much improved for six years to date.

The following eleven cases are those of general epilepsy so-called, as distinguished from those already reported of the Jacksonian type. The picture, as is well known, is an entirely different one from all standpoints, but especially so from the standpoint of the result ob-

tained from operation. There is not space in this report to give these cases in detail. Among these eleven cases, there were only two, which so far as could be made out, were traumatic in character; one in which tumor was the probable cause, and one which progressed to general dementia. Three of these cases had an unfortunate outcome though I do not believe the operative procedure was to blame. They were hopeless from the start. In all of these eleven cases an operation of one type or other was performed, either the decompression of Cushing, or the so-called trap door drainage or decompression of the motor area as recommended by Krause.

CASE 4. (Hosp. No. 447). Was eighteen years old. At operation bulging of the brain was found with lack of pulsation and the Cushing decompression was done. There was infection in this wound and from it an ounce or two of pus was drained. The symptoms were relieved and eleven years and five months later I found there had been no fits since the operation: that there was sometimes pain in the head and weakness of the left arm. This outcome, following infection of a wound opening right into the brain itself, is interesting as showing the protection against infection. There must have formed adhesions in the covering of the brain, acting in much the same way as peritoneal adhesions do in the abdomen.

CASE 5. (Hosp. No. 483). Was thirty-four years old. Adhesions and edema of the cortex and membranes were found. A Krause decompression over the motor area was done which gave relief for a few months with later recurrence of fits and death in three years. This case was a traumatic case with severe injury at the vertex of the skull and very probably elsewhere.

CASE 6. (Hosp. No. 552). Was a baby eight months old. There was a depression over the skull in the motor area. The depression was raised some time after the injury occurred. The child is now eleven years old and has had no symptoms since.

CASE 7. (Hosp. No. 881). Was a man twenty years old. The dura was found tense with what appeared to be a spur in the bone which was removed, the Cushing decompression being done. The patient felt better for a time but in eight months time I heard that the fits had returned and I have not been able to get any data since.

CASE 8. (Hosp. No. 1456). Was a man twenty years old. The Cushing operation was done and increased brain pressure and fluid was found. The patient felt better for a time. For four years since the operation he has had good health except when he has the fits. He thinks that he is not improved.

CASE 9. (Hosp. No. 1469). Was a girl seventeen years old, in which a Cushing operation was done. No pathological findings were noted. This case had less frequent and less severe fits after the operation. She has had fits at intervals since the operation in 1913 but has had none for the last two years to date. She is supporting herself.

CASE 10. (Hosp. No. 1651). Was a boy, nineteen years old. The dura was found tense and bulging, with no pulsation. There was edema of the arachnoid. The Krause valve formation over the motor cortex was performed. This patient had lessened symptoms after the operation but after six years and eight months I am informed that the patient's health is gradually failing, the fits recurring with greater frequency but being less severe.

CASE 11. (Hosp. No. 1718). Was a man twenty years old. He had tension of the brain and edema of the arachnoid and turgid cerebral vessels. This patient had mental improvement and no fits for a time, following the operation, but he later degenerated mentally and died delirious after eight months.

CASE 12. (Hosp. No. 1875). Was a boy eleven years of age. He had adhesions of the cortex. This patient had no fits following the Krause operation and improved in mentality for a while but later seemed to become mentally dull and died of peritonitis a year after operation.

CASE 13. (Hosp. No. 1880). Was a boy aged eleven. The Cushing operation was performed. Intradural pressure was found, and congestion of the vessels. He improved temporarily but the fits returned. The patient failed mentally and died in two years.

CASE 14. (Hosp. No. 1989). Was a man forty-one years of age. At operation great pressure was found and adhesions but no fluid. The Krause operation was performed with relief of headache but hemiplegia supervened and the patient died with tumor symptoms. In this case error was made in the form of operation adopted. The Cushing operation for the relief of pain should have been done.

In the literature back to 1906 I have been able to find in various articles eighty-one cases in which enough detail is given to draw conclusions. Of general epilepsy I find, twenty-one cases, including the tumor cases, and the type of operation has been variously described as trephining, fenestration, craniotomy or excision of the tumor which naturally means also a decompression. The average time of these reports since the operation is three years and a couple of months, and the reported result on eleven of these is a cure, there are three reported deaths, and the others much improved. In considering these statistics it must be remembered that the tendency is to report only

successful cases and over against these apparent successes must be presumed a large number of cases in which only slight improvement took place, no improvement, bad result, or death.

Of the focal cases, I have found, including the traumatic, forty-one. The length of time elapsed between the operation and final report, excluding nine cases which died evidently as a result of operation, average three and a half years. The type of operation in these cases again is decompression, fenestration, or removal of tumor, or some definite pathological conditions. These cases include those in which excision of the cortical center was performed which also accounts for a high mortality. Ten of these cases are reported as cured; and various degrees of improvement, either in the mental condition or the number and severity of the fits, are reported in such others as survived.

In sixteen cases, where the type of epilepsy was not distinctly stated, in which the same type of operation was performed, the general average as regards time and result seems about the same. And I found three cases in which the patients were cured for eight, four, and three years respectively, the first by amputation of the hand following a burn, the second by the stitching up under ether of a severe wound in the thigh, and the third in which an operation for the extirpation of tubercular glands of the neck was done under ether.

To sum up very roughly. If we take the eighty-one cases which I have found and add the fourteen which I have done it makes ninety-five cases of epilepsy of all kinds in which some form of operation has given beneficial results in a majority of the cases, and a so-called cure after a considerable interval in a percentage. If we exclude the cases in which either extirpation of the cortical center and of tumor was done the mortality is not high.

As to my fourteen cases, there were no "operative deaths." The number is too small to make any general conclusions. I feel that I did no harm to these patients. Without exception there was temporary improvement. Some were improved over considerably extended periods of time and there are three which can be called cures over eleven and a half, eleven years and five months, and ten years. Three are relieved and living useful, happy lives, nine, six, and five years after operation. My general impressions are that it has been well worth while. I have been able to note some local pathological condition in almost all cases. I feel that the pathologist should see the living subject and that he is now in the same relative position that he was in the upper abdomen before the surgeon demonstrated the living pathology at operation.

I do not wish to start the over enthusiastic
(Concluded on page 78)

TABLE 1.—RÉSUMÉ OF AUTHOR'S ELEVEN CASES OPERATED FOR GENERAL EPILEPSY.
(Three cases of Jacksonian epilepsy reported in full in the text.)

HOSP. No. OF CASE	AGE OF PATIENT	PATHOLOGY FOUND AND TYPE OF OPERATION	TEMPORARY RESULT	ELAPSED TIME TO FINAL REPORT	RESULT AT THAT TIME	REMARKS
447	18 yrs.	No pulsation. Bulging of brain. Cushing decom- pression.	Improvement.	11 yrs. and 5 mos.	No fits since operation. Sometimes pain in the head and weakness of left arm.	Infection of operation wound.
483	34 yrs.	Adhesions and edema. Decompression of cortex.	Relief for few months.	3 years	Death after recurrence of fits.	This was a traumatic case with severe in- jury at the top of the skull.
552	8 mos.	Depression of skull. Trephining over motor area.	Well.	10 years	No attacks.	Traumatic case.
881	20 yrs.	Dura tense. Spur in bone. Cushing decom- pression.	Felt better.	8 months	Fits continue.	Unable to follow up case.
1456	20 yrs.	Increased press- ure and fluid. Cushing decom- pression.	Feels better. Less severe fits.	4 years	Good health except when he has fits. Thinks he is no better.	
1469	17 yrs.	Not noted. Cushing decom- pression.	Fits less often and less severe.	9 years	Fits at in- tervals but none for last 2 yrs. Is support- ing herself.	Seen person- ally and ap- pears very well.
1651	19 yrs.	Dura tense, bulg- ing, no pulsation, edema of arach- noid. Modified Krause's operation.	Lessened symptoms.	6 yrs. and 8 mos.	Fits recurr- ed at greater frequency but less severe. Feels well between fits. General health failing gradually.	
1718	20 yrs.	Bulging brain and edema of arachnoid. Turgid, dusky ap- pearing vessels. Modified Krause's operation.	Mental im- provement and no fits.	8 months	Died deliri- ous in 8 months.	
1875	11 yrs.	Adhesions of cor- tex. Modified Krause's operation.	No. fits. Improved men- tally.	1 year	Had no fits after he left hospital but seemed dull. Died of peri- tonitis.	
1880	11 yrs.	Intro-dural pres- sure and fluid with congestion of vessels. Cushing decom- pression.	Improved tem- porarily.	2 years	Fits return- ed, failed mentally and died in 2 yrs.	
1989	41 yrs.	Pressure and ad- hesion. No fluid. Modified Krause's operation.	Relief of head- ache but hemi- plegia.		Death from tumor symp- toms.	Evident case of tumor. Should have had Cushing operation for relief of pain.

TABLE II.—CASES FOUND IN LITERATURE BACK TO 1906

TYPE OF CASE.	REFERENCE.	NUM- BER	LENGTH OF TIME SINCE OPERATION.	TYPE OF OPERATION.	REPORTED RESULT.
General	W. G. Spencer. Proc. Roy. Soc. Lond., 1909-10, iii. Clin Sect., p. 65.	1	3 years	Trephining	No fit since operation except one slight one after smothering varnish. Has kept to vegetarian diet.
"	W. Alexander, Lancet, Lond., 1911, ii, pp. 932-938.	2	8 years	Fenestration of dura	Cured.
"	<i>Ibid.</i>	3	2 years	Fenestration on left side	Had no fits for 12 months after operation and had much improved. Died of Bright's disease at end of two years and fits returned before his death.
"	<i>Ibid.</i>	4	4 years	Trephining, 1st op. left side, no result. 2nd op. right side	Became very sensible and intelligent. Attacks less by one half.
"	<i>Ibid.</i>	5	3½ years	Trephine and fenestration	Much better since operation. After 3½ years had attack from which he died.
"	<i>Ibid.</i>	6	1 year	Fenestration	Attacks one-fourth of normal number before operation.
"	<i>Ibid.</i>	7	1 year	Fenestration	Reported to be much improved and few attacks he has slighter than before operation.
"	Charles H. Frazier. Tr. Coll. Phy., Phila., 1912, 3 S., xxxiv, pp. 82-103.	8	6 years	Craniotomy	No attack in 3 years.
"	<i>Ibid.</i>	9	4 years	Blood clot in motor region removed	Only one attack since operation. None for last three and a half years.
"	<i>Ibid.</i>	10	5 years	Craniotomy	Has had no attacks since operation.
"	<i>Ibid.</i>	11	3 yrs. and 9 mos.	Craniotomy and decompression	Only one mild attack.
"	<i>Ibid.</i>	12	nearly 4 years	Craniotomy and decompression	Has had no convulsions or seizures since operation.
"	G. K. Collier. N. Y. State. Jour. Med., New York, 1912, xli, p. 633.	13	nearly 2 years	Fenestration and drainage	Attacks lessened.
"	<i>Ibid.</i>	14	nearly 2 years	Fenestration and drainage	First year after operation number of attacks 40, same as previous year. Second year, 12.
"	<i>Ibid.</i>	15	8 months	Fenestration	In 11 days before operation had 148 attacks; none since.
"	Theophil Klingmann. Phy. Surg. Detroit and Ann Arbor, 1913, xxxv, pp. 296-300, 318.	16	not stated	Trephining	Discharged 30 days after operation in perfect health. No further report.
"	<i>Ibid.</i>	17	not stated	Trephining	No seizures since operation. No date stated.
"	Surgery of the Brain. By Fedor Krause.	18	no operation		Cure without operation.
"	<i>Ibid.</i>	19	4 years	Decompression	Improvement.
"	<i>Ibid.</i>	20	3 years	Decompression	Relieved, but died in three years.
"	<i>Ibid.</i>	21	1 month	Excision tumor	Died
Focal	Thomas H. Kelley. St. Louis Med. Review, ix, No. 6, pp. 161-165.	1	1 year	Trephining	No recurrence.

TABLE II (continued).

TYPE OF CASE.	REFERENCE.	NUM- BER	LENGTH OF TIME SINCE OPERATION.	TYPE OF OPERATION.	REPORTED RESULT.
Focal	W. Alexander. <i>Lancet</i> , Lond., 1911, ii, pp. 6,2438.	2	5 years	Not stated	No mental improvement but had only 14 fits in 3 years after operation, while formerly had several thousand annually.
"	<i>Ibid.</i>	3	4 years	Fenestration	Sixty-eight fits only since operation. For almost the last year there have been none except slight faintings lasting only a few seconds.
"	<i>Ibid.</i>	4	about a year	"Usual operative technique on right side of head"	Mentally and physically much improved. A very promising case. Has only one attack, on an average, per week.
"	<i>Ibid.</i>	5	2 years	Fenestration	Mental condition very much better. Attacks about one half of original number.
"	<i>Ibid.</i>	6	2 years	Fenestration	Has had no fits and no medicine since operation.
"	Charles H. Frazier. <i>Tr. Coll. Phy.</i> , Phila., 1912, 3 S., xxxiv, pp. 82-103.	7	7 years	Evacuation of sub-cortical cyst.	Attacks less frequent and less severe.
"	<i>Ibid.</i>	8	6 years	Evacuation of cyst	Gradual subsidence of attacks; none for last 9 months.
"	F. C. Simpson. <i>Louisville Month. Jour. Med. and Surg.</i> , 1913-14, xx, pp. 19-23.	9	1st op. 1 year 2nd op. 11 mos.	Decompression Arachnoid opened and fluid evacuated and portion of arachnoid center dissected away	No relief. Attacks continued to a little more than month after operation when patient started taking medicine from a druggist and had greatly improved. Fits recommenced when medicine was stopped. (<i>Query</i> : Relief from operation or medicine.) For three months has been without medicine, still improving.
"	Theophil Klingmann. <i>Phy. Surg.</i> , Detroit and Ann Arbor, 1913, xxxv, pp. 296-300, 318.	10	not stated	Decompression	Uneventful recovery after operation. Nothing further reported.
"	<i>Ibid.</i>	11	not stated	Repeated lumbar puncture Kocher	Recovery complete in 6 weeks.
"	August Schlaechner. <i>Louisville Month. Jour. Med. and Surg.</i> , 1913-14, xx, pp. 33-52.	12	1 year		Had no suggestion of epilepsy until a year after operation when there was tingling in both arms but no fits.
"	J. B. Murphy. <i>Surg. Clin. Chicago</i> , 1914, iii, pp. 931-943.	13	2 days	Osteoplastic flap op. and freeing of adhesions	Very decided improvement. Thirty-six hours after operation convulsions and coma with death of patient 18 hours later.
"	Robert Earl. <i>Minnesota Med. J.</i> , Paul, 1919, ii, pp. 325-329.	14	2½ years	Left subtemporal decompression	No convulsions since operation.
"	Fedor Krasne. <i>Surgery of the Brain</i> .	15	18 hours	Excision of cortex	Death in collapse.
"	<i>Ibid.</i>	16	22 hours	Cortical excision	Death.
"	<i>Ibid.</i>	17	5 days	Excision of center	Death 5 days later.
"	<i>Ibid.</i>	18	1 year, 5 months	Excision of angiona	Cured.
"	<i>Ibid.</i>	19	2 years	Excision of tumor	Cured.
"	<i>Ibid.</i>	20	1 year	Excision of scar	No influence.

TABLE II (continued).

TYPE OF CASE.	REFERENCE.	NUM- BER	LENGTH OF TIME SINCE OPERATION.	TYPE OF OPERATION.	REPORTED RESULT.
Fœtal	Fedor Krause, Surgery of the Brain.	21	not stated	Excision of center	Not stated.
"	<i>Ibid.</i>	22	17 years	Excision of cyst	Cure and cure of idiocy.
"	<i>Ibid.</i>	23	not stated	Excision of cyst	Not stated.
"	<i>Ibid.</i>	24	7½ years	Excision of cyst	Cure.
"	<i>Ibid.</i>	25	9 months	Excision of cyst	No result. Death in 9 months.
"	<i>Ibid.</i>	26	5 months	Excision of cyst	Cure.
"	<i>Ibid.</i>	27	3 years	Excision of center and cyst	Cure.
"	<i>Ibid.</i>	28	2½ years	Excision of center	Improvement.
"	<i>Ibid.</i>	29	8 years	Excision of center	Cure.
"	<i>Ibid.</i>	30	3 years	Excision of scar	Improvement.
"	<i>Ibid.</i>	31	2 months	Decompression	Improvement.
"	<i>Ibid.</i>	32	a few hours	Excision of tumor	Death.
"	<i>Ibid.</i>	33	a few hours	Excision of center	Death.
"	<i>Ibid.</i>	34	4 years	Ligation of angiona	Cure.
"	<i>Ibid.</i>	35	24 hours	Excision of tumor	Death.
"	<i>Ibid.</i>	36	33 days	Removal of cyst.	Death.
"	<i>Ibid.</i>			Excision tumor	
Traumatic	Thomas H. Kelley, St. Louis Med. Review, ix, No. 6, pp. 161-165.	1	22 months	Trephining	Four convulsions. Mental condition improved.
"	W. Alexander, Lancet, Lond., 1911, ii, pp. 932-938.	2	1 year	1st op. fenestration on right side where there was a depression in the skull. 2nd op. on opposite side	No improvement.
"	A. Schachner, Louisville Month. Jour. Med. and Surg., 1913-14, xx, p. 33.	3	1st op. 3 years 2nd op. 1 year	Depressed bone removed. Kocher op.	Improved but, owing to the patient's erratic character, difficult to control and no systematic treatment could be carried out.
"	William M. Lesykusky, Jour. A. M. A., Chicago, 1914, lxii, p. 612.	4	3 yrs. and 7 mos.	Edge of bone defect removed; dura incised and dissected off the brain tissue.	Condition worse. Decided improvement. No fits for a year. Once had tingling in both arms but no seizure. Has never had fit since operation. His general health has been good.
"	Surgical Clinics of Chicago, 1914.	5	about a month	Large cyst opened and drained	First 4 days after operation rational. Later, mental confusion increased with well marked sensory aphasia. Died two weeks after leaving hospital, unimproved.
Not stated	Parker, Rushfon, Brit. Med. Jour., Lond., 1907, i, p. 1477.	1	2 years	Ligature of left common carotid	Relieved. Fits less severe.

TABLE II (continued).

TYPE OF CASE.	REFERENCE.	NUM- BER	LENGTH OF TIME SINCE OPERATION.	TYPE OF OPERATION.	REPORTED RESULT.
Not stated	E. M. Robinson. New Orleans Med. and Surg. Jour., 1907-8, ix, pp. 96-98.	2	3 years	Trephining	Less than one year after operation fits ceased and there have been none since. Paralysis began to improve di- rectly after operation and speech gradually returned.
"	E. E. Padgett. Indianapolis Med. Jour., 1909, xii, p. 41.	3	under a year	Trephining	Much improved mentally. Family report 1 or 2 fits since return from hospital, but nothing like those be- fore. Is now like normal child and has gained remark- ably in weight.
"	W. Alexander. Lancet, Lond., 1911, ii, pp. 932-938.	4	3 years	Fenestration	Fits greatly reduced. Has developed mentally and physi- cally.
"	<i>Ibid.</i>	5	2 years	Fenestration	Fits only 1 per week as against sometimes 4 per day before operation. Distinctly improved.
"	<i>Ibid.</i>	6	2 years	Trephining and fen- estration	Attacks much reduced. Mental and physical condition much improved.
"	<i>Ibid.</i>	7	3 years	Fenestration and drainage	Attacks much less.
"	<i>Ibid.</i>	8	1 year		For nearly a year has been without attacks and without medicine.
"	<i>Ibid.</i>	9	1 year	Fenestration	Operation in May. Reported attacks disappeared after November.
"	<i>Ibid.</i>	10	1 year	Fenestration	Returned to work. One attack during year. Hemiplegia gone, speech returning slowly.
"	<i>Ibid.</i>	11	1 year	Fenestration	Mental condition much brighter. Fits much less. One- tenth of what they were before operation.
"	G. K. Collier. New York State Jour. Med., xii, p. 633.	12	2 years	Fenestration	Year of operation, 27 attacks; 1st year after, 12 at- tacks; 2nd year after, 0 attacks.
"	<i>Ibid.</i>	13	1 day	Fenestration	Patient died one day after operation from chloroform necrosis.
"	Louis Frank. Am. Jour. Surg., New York, 1914, xxviii, pp. 113- 117.	14	1 year	2 operations. Excis- ion of brain sub- stance, motor area of left arm in which spasm always began	Operated on in November. Had last convulsion in Feb- ruary and none since to date (Nov. 20, 1913).
"	Donald A. Nicholson. Northwest Med., Seattle, 1914, N. S. vi, p. 140.	15	7 months	Cerebral decom- pression	Free from attacks for 7 months and feeling much better than for years. Surgeon explains this by improved gen- eral care as the operation could not have helped in any other way than as a relief in an emergency.
"	Arthur C. Strauchauer. Minne- sota Med., St. Paul, 1919, ii, pp. 382-385.	16	10 years	Decompression and removal of piece of bone and exostosis on inner table of plate of skull	No convulsions since operation. Before operation an average of 2 a week.
Epilepsy relieved by operation for other causes.	Matthew Woods. Jour. A. M. A., Chicago, 1908, i, pp. 663-655.	1	8 years	Amputation of hand for burning acci- dent	No convulsion since operation.

TABLE II (continued).

TYPE OF CASE.	REFERENCE.	LENGTH OF TIME SINCE OPERATION.	TYPE OF OPERATION.	REPORTED RESULT.
Epilepsy relieved by operation for other causes.	Matthew Woods, Jour. A. M. A., Chicago, 1908, i, pp. 655-663.	4 years	Operation for severe laceration of thigh. Stitches put in under ether	Free from convulsions.
<i>Ibid.</i>	<i>Ibid.</i>	3 years	Extirpation under ether of bunch of tubercular glands in right surgical triangle extending up toward the ear.	No convulsions since operation.

(Concluded from page 72)

surgeon on a career of indiscriminate operating for epilepsy but I do think that there is indication that in some cases operation is beneficial. If this is conceded the first great difficulty is to pick such cases as may be so benefited; the second is to decide what operation should be performed. The only way to get data on which to base opinion is the study of cases and it is for that reason I am making this report.

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- ¹ MacRobert, R. G.: Fits and Fallacies. Jour. A. M. A., 74: 1000, April 10, 1920.
- ² Jour. Tenn. Med. Assn., Nashville, 1910, iii, 117-121.
N. A., Chicago, 1908, i, 655-663.
- ⁴ Brit. Med. Jour., London, 1906, i, 1920; St. Louis Med. Review, Vol. IV, No. 6, 161-165.
- ⁵ New York State Med. Jour., New York, 1912, xii, 633.
- ⁶ "Pagan and Christian Creeds," by Edward Carpenter.

PYORRHEA AN ANCIENT DISEASE.

BY CAROLUS M. COBB, M.D., LYNN, MASS.

PUS around the teeth occupies such a prominent place as a cause of disease, and the theories brought forward to explain the origin of the condition are so varied and often contradictory, that any facts bearing upon the question should be very welcome. The explanations, often vehemently insisted upon, are ingenious and interesting, and vary all the way from a change in the saliva to a lack of green vegetables in the diet. THE BOSTON MEDICAL AND SURGICAL JOURNAL has very kindly published two articles of mine, on the subject of pyorrhea. In the first of these, I called attention to an anatomical factor that seemed to me of some importance, and in the second, to the menace of the toothbrush as a means of keeping up the infection of the gums. In these articles, I did not claim that either of these conditions was the sole cause of pyorrhea. I refrained from making such a claim for the good and sufficient reason that I did not believe pyorrhea to be caused by any one, two, or three factors, but rather that it might be caused by a large number of vicious habits or accidents.

In this article I wish to call attention to three quotations, two of them relating to the antiquity of the disease, and the third to a method of treatment which may be of some value. In 1912, Halling, in the Thames Valley, not far from London, needed a new sewage basin, and in excavating for this, the workmen unearthed a fossil skull that Arthur Keith believes to have been deposited in its resting place at least twenty-five, and possibly thirty thousand years ago. The point of interest to us is Keith's remarks concerning the teeth. This will be found on page 79 of Keith's "The Antiquity of Man." First, in regard to the age of the man—"a man not over forty years of age, probably considerably under." In regard to the condition of his teeth, he says: "For a man of this age, the teeth were in a surprisingly bad condition. They were deeply worn;

the enamel had disappeared by wear from the chewing surfaces of the crowns, exposing the dentine, and, in some cases, the pulp cavities. Of the six molar teeth of the lower jaw, five had been lost from disease—not from caries, but from abscesses or gumboils forming at their roots. One of the premolar teeth had also perished before death; the incisors, canine, and premolars, some of which had fallen out after death, were much worn. The food of the Halling man was rough in nature, and he suffered severely from dental disease." This man lived on a mixed diet, and such vegetables as he had were fresh. His meat varied in freshness. When it was first killed it was, of course, fresh, but, unless there was an oversupply, the family did not throw any of it away, and the last of it was probably rather high.

The above quotation carries the disease pretty far into the past, but it is carried still farther in the description of the LaChapelle man, who is believed to have lived one hundred thousand years ago. To quote again from Keith, "The Antiquity of Man," page 118, "but the open condition of the sutures between the bones of the massive skull suggests a younger age—perhaps under forty. For such an age, the teeth, which were planted in jaws of exceeding strength and size, are in a surprisingly bad state. All the molar or chewing teeth had been lost from disease during life." Evidently the same conditions that caused the loss of the LaChapelle man's teeth also caused the loss of the Halling man's teeth seventy-five thousand years later.

Coming down to more modern times, I will give a quotation from Josselyn's "Account of Two Voyages to New-England," published in 1675. In giving an account of the diseases of New England, he says (page 142): "Men and Women keep their complexions, but lose their Teeth: The Women are pittingly Tooth-shaken; whether through the coldness of the climate, or by sweetmeats of which they have store. I am not able to affirm." The same condition that Josselyn reported in 1675 still exists in the rural parts of New England. The fashion of wearing false teeth that began more than fifty years ago still persists among the country people. When I lived in Maine, thirty years ago, the percentage of people wearing false teeth was exceedingly high, and I have every reason to believe that it has not grown less. This condition could not be due to lack of fresh vegetables. The diet was very well balanced, and I do not think the diseased teeth could be ascribed to errors of that kind.

My last quotation is from J. J. Mann's "Round the World in a Motor Car." On page 67, in speaking of the Hindus, he says: "And yet the native, clad in rags, or a rag, dirty beyond description, brushes his teeth every day, and never twice with the same toothbrush. He

would consider that indescribably unclean, for has not his religion taught him to cut a twig from a special tree, which has an astringent sap, and use one of these with plenty of water every day, and as the operation takes place on the sidewalk, or at the place where the sidewalk should be, you can see him daily, as you pass, engaged in this interesting occupation, and his teeth are as white as ivory. If you want to insult him, you must say his mouth is dirty, and that will fill his cup with bitterness to the brim."

Do these quotations describe the disease and indicate the means of cure, or rather prevention? Keith says that the development of man's brain relieved the work of the teeth; that is, that he lived on better food and better prepared food. In a general way the statement is true, but in a more specific sense it is not. The LaChapelle man had as large a brain as the average man of today,—in fact, larger,—he had the use of fire, he buried his dead, and he had some sort of a belief in an hereafter. The larger brain is an indication that the man was better able to learn by tradition, that is, by the experience of others, than one with a smaller brain. The handicap of the fossil man was that he had no way of recording his knowledge so that it would be easily available to others. His brain did save the work of his teeth, and the teeth grew smaller, but his progress was slow. I doubt whether the lack of the use of the teeth, in that stage of development, led to disease. I believe the diseased gums of the fossil man were caused as they are caused today, by infection. Our present method of living does not develop the teeth so that they resist infection, and the toothbrush, as it is commonly used, does not remove infection, even if it does not add to it. The toothbrush can be so taken care of that it will be a help and not a menace.

Pyorrhea has evidently afflicted the human race for many thousands of years. The Halling man had a well-marked case, and the LaChapelle man quite probably suffered from it. The disease was present in New England in 1675, and it is here today. A disease that began so early and has persisted so long must have a definite cause. The two factors that are common to all the stages of man's development are first, the teeth have been continuously less used, and have grown smaller, and second, infection. Diet, lack of fresh vegetables, changes in the secretions of the mouth, and many other theories do not explain a disease that has lasted so long. The problem of treatment seems to me to be the treatment of recurring infection in an organ that is becoming useless. This can be done, but it is evident that the disease will not stay cured. Nature makes no effort to save an organ that has become useless, or nearly so. If we wish to save our teeth, we must bear in mind that they are being less and less used, and that unused or little used organs are prone to infection.

GENERAL PHYSIOLOGY IN ITS RELATION TO THE PROBLEM OF NEW GROWTHS.

BY FREDERICK H. PRATT, M.D., BOSTON.

THE honor has fallen upon me to construct a preface to topics that are to follow—to conjure up a mist of generality out of which shall emerge clear images drawn by others. But, even vaguely, what has physiology to do with cancer? Perhaps the unwontedness of the idea may tempt you, as it has tempted me, to enquire.

By general physiology we understand the study of life—not in order to elucidate the workings of any specific kind of living form, for example, the human body or the cactus plant, but to get as near as possible to the answer to the question: What is life itself—life in its very essence, wherever and in whatever diversity it may be found? Now, the very existence of such a science implies a common process in the objects studied; else were it a task of mere curio collecting, and no science at all.

A common process reflects a common structure. Data from many directions appear to show that protoplasm is of the nature of an emulsion—at least two liquids, nonmiscible, one suspended in the other. Thus the suspended portion, or phase, is separated into minute particles tending from their surface tension to be spherical. This phase is thus dispersed, or discontinuous, whereas the phase in which it is suspended is continuous throughout. As we pass in fancy through a mass of protoplasm, however, we come eventually to a partition beyond which lies the outer world, or the interior of a further protoplasmic mass, such as nucleus, neighbor cell, etc. Thus is living material provided with a multiplicity of surfaces—surfaces of suspended particles and surfaces of partitions. Hence it is that certain physical and chemical forces especially favored by multiplicity of boundaries have come to be regarded as all-potent in the living process—by some, indeed, as the living process itself. Such forces are surface tension, osmosis, adsorption, and the electrical and chemical interactions involved in them.

If these are the essential properties of life (or, if you prefer, properties essential to life), then the conception of a simple, undifferentiated, primordial life-substance is as yet hardly tenable. For it is well demonstrated that although certain cell products, as enzymes, may act potently after the cell is crushed, the functions really characteristic of life—response, conduction, respiration, growth, etc.—all disappear with the destruction of this manifold system of surfaces and partitions. Function seems determined and limited by structure. A new morphology has thus sprung up—the minute

anatomy of the chambered cell of life. And a new physiology—the attempt to describe, measure and correlate the subtle mechanical, chemical and electrical forces occasioned by and playing upon this structure, and to trace the interactions between it and the non-living environment. Such is the field of general physiology, and such must be the source to which we must turn in our endeavors to unravel the secret of behavior of cancer cells and of all cells.

Let me therefore urgently remind you that not only to workers in cancer clinics—direct applicers of knowledge—must the world turn for light on this appalling human scourge, but also, with sympathy and all needed aid, to every investigator in the realm of living things and of the forces utilized by living things. The titles of scientific publications generally are distressing in their remoteness from human interest. Yet, I am almost tempted to say, the more remote the better. Where fundamental progress is to be made, the utilities of preconceived application are often misleading. This is particularly true of work in general physiology, where, nevertheless, every step of progress is basic to the welfare of the living creation. In this connection two dicta especially may be urged:

First, honor and aid the investigator whose whole aim is the solution of his *immediate problem*. If he had to worry about scurvy, or diabetes, or cancer, how could he arrive unerringly at the relative permeability of plasma membranes, or follow with unabated breath the wanderings of the X-chromosome! Yet to him the world looks for light in its biological, and therefore therapeutic, darkness.

Secondly, despise not the investigator's choice of material. Some of us cannot understand the significance of the mouse-tumor. Others may scorn the study of the disease of a cabbage plant. Many would turn with contempt from work done on a star-fish egg. The point we miss is this: *all success in the investigation of vital processes depends on the happy choice of material*. Certain cellular forces are common to all living things. But some cells, through accidents of arrangement or accessibility of structure, or of specialization of activity, are open to fruitful experiment in a given problem where others are not.

Thus the problems of *growth* belong to workers in widely variant material, all striving toward a common end—the questions at issue being: Why does the daughter cell resemble the mother cell—the problem of heredity; how does differentiation progress along orderly lines and end in the one predictable type of tissue?—the problem of development. And how are these bonds of order broken, and a wild or sullen mob of low-grade cells loosed from the customary tissue discipline, destined to crush or poison *in situ*, or to be carried along paths of transport to distant deeds of violence?

Would that all such anarchies of the tissues were subject to short-cut approach through the discovery of controllable parasitic causes! Yet, even if in some happy future we shall recognize a true infectious origin of human cancer, even then the fact of parasitism is only one element in the solution; so often does the existence of two organisms in an effect (*i.e.*, parasite and host) complicate rather than simplify the problem as a whole.

Let us gather the light from every star. Let us focus that light patiently as it comes. As to life in the normal cell—behold, we know not anything beyond a promising outline; but the abnormal cell must share in the growing onslaught of that knowledge.

Current Literature Department.

ABSTRACTORS.

GERARDO M. BALBONI	FRED S. HOPKINS
LAURENCE D. CHAPIN	CHARLES H. LAWRENCE
AUSTIN W. CHEEVER	HERMAN A. OSGOOD
ISADORE CORIAT	EDWARD H. RISLEY
ERNEST M. DALAND	WILLIAM M. SHEDDEN
RICHARD S. EUSTIS	GEORGE G. SMITH
ROBERT M. GREEN	JOHN B. SWIFT, JR.
JOHN B. HAWES, 2D	WILDER TILESTON
JOHN S. HODGSON	BRYANT D. WETHERELL

SYPHILITIC DISEASE OF THE LIVER.

CARNELLI, R. (*Policlinico*, September 26, 1921, No. 39) reports in detail the case of a man 22 years of age with a large smooth rounded tumor of the liver—painless and resistant to touch. The whole liver was enlarged. The tumor had been growing for two years without pain or fever but there was progressive weakness and discomfort from the size. The Wassermann test was negative and a diagnosis of sarcoma made. A year later the patient presented himself with processes in the long bones and a suppurating lesion on the shoulder. Mercurial treatment was begun with marked improvement. The Wassermann test was positive now. Carnelli believes it was a congenital syphilitic disease of liver developing late and the bone lesions were of the late congenital type. Such congenital lesions have been known to develop as late as the age of 28.

In every case of abdominal tumor it is always well to consider syphilis and to be very cautious regarding operation. All possible laboratory tests should be made. Syphilitic disease may effect a liver already pathologic from other causes and treatment of the syphilis may induce marked improvement even though the other factors may continue to operate. It is possible to discover a syphilis even without the aid of the Wassermann test. He comments on the difficulty in distinguishing a syphilitic a malignant, or hydatid cyst or a tumor in the gall bladder or kidney region.

[G. M. B.]

CLINICAL AND EXPERIMENTAL OBSERVATIONS IN THE USE OF SALINE IRRIGATION IN THE TREATMENT OF DIFFUSE PERITONITIS.

WILLIS, A. MURAT (*Surgery, Gynecology and Obstetrics*, October, 1921), writes as follows:

The mortality in the series treated by irrigation was 16 per cent. as compared to 50 per cent. in those treated by the "get in quickly—get out quicker" meth-

od. So far as I could determine, the patients in the irrigated series were fully as ill as those in the non-irrigated, and, in my hands, I am convinced that the same high mortality would have resulted had irrigation been omitted.

Aside from the reduction in mortality, I attribute to the use of irrigation a shorter and smoother convalescence and a lessening of the importance of drainage and the Fowler posture.

In the face of this evidence, is it logical to consider that irrigation is a procedure so fraught with danger to the patient? With a full realization of the adverse views held by many, I wish to state that my clinical experience and many facts of animal experimentation indicate to me strongly that this measure is of value in the treatment of progressive diffuse peritonitis, and I am convinced that it enabled me to save patients who would otherwise have succumbed.

[E. H. R.]

PAPILLARY CYSTADENOMA OF THE OVARY

ERDMANN, J. F., and SPAULDING, HARRY V. (*Surgery, Gynecology and Obstetrics*, October, 1921) say:

Papillary cystadenoma is the most important surgical disease of the ovary. It is variously stated to occur in from 10 to 27.5 per cent. of all ovarian tumors. A large number of cases occur in patients under the age of thirty. The most probable development is from a cellular perversion of the germinal epithelium.

There is a strong tendency to bilateralism (22.2 per cent.) and local metastasis. General metastasis is not rare. Bilateral ovarian tumors demand a careful examination of the abdominal viscera and breasts.

The absence of symptoms referable to the pelvic organs is a deceptive feature of the disease. Ascites is an advanced symptom and indicates rupture, peritoneal metastasis, and often malignancy. Every woman with ascites, without a sufficient explanation in the liver, heart, peritoneum, or kidneys, should be laparotomized even though bimanual examination be negative.

Microscopically 66.6 per cent. of papillary cystadenomata are cancerous or precancerous.

Every ovarian cyst must be removed intact by abdominal section as soon as discovered.

In unilateral oöphorectomy, the patient should be periodically examined.

Careless or rough handling resulting in intra-abdominal rupture, tapping to reduce the size of the tumor and the vaginal approach cannot be too strongly condemned.

Radium should be employed in cases in which the ovaries or the peritoneal implants could not be surgically removed.

[E. H. R.]

SURGICAL TREATMENT OF MEGACOLON.

DOWD, CHAS. N. (*Annals of Surgery*, October, 1921). Dowd presents a brief but interesting article on the treatment of this rather obscure condition. In spite of the annoyances of such a procedure, he finds that the Mikulicz operation is the better procedure to use. His review of the surgical treatment is of distinct value.

[E. H. R.]

CHRONIC CHOLECYSTITIS WITHOUT STONES--DIAGNOSIS AND TREATMENT

MYER, W. (*Annals of Surgery*, October, 1921).

Myer goes to some extent into a differential diagnosis of cholecystitis with and without stones.

He refers to a statement made by A. W. George of Boston that a healthy gall-bladder does not show on an x-ray plate under ordinary conditions. Therefore, if the x-rays demonstrate a distinct outline of the gall bladder, without showing the presence of

stones, such a gall-bladder is to be considered pathological. This is true in about 90 per cent. of cases. The author, however, does not believe that George's statement is correct in such a large per cent., but probably it should be looked upon as a possible feature in a considerable number of cases.

He further states that, in view of the fact that bacteria are frequently found in the center of gall-stones, we can understand how it happens that cholecystitis without stones is a precursor of cholecystitis with stones. Cholecystectomy in cases of cholecystitis without stones, therefore, clearly represents a prophylactic operation in many instances and is of particular benefit to those who must get well in order to be able to earn their living.

Chronic cholecystitis without stones is a much more frequent disease than has hitherto been believed. Clinically, it seems to take the same place in the upper abdomen as chronic appendicitis does in the lower.

If the gall-bladder is only temporarily drained, such an organ may become the seat of recurrent inflammation at any time and without any provocation. It also may be the nidus for formation of further stones.

The mortality of the operation done in the interval is almost as negligible as that of appendectomy in the interval stage.

The author considers that temporary drainage of the abdominal cavity after cholecystitis is an absolute necessity, thus differing from some more radical contemporaries. He does not believe in the drainage operation because of the danger of complications such as stone formation, re-infection, adhesions, etc.

The human anatomy is as well off without the gall-bladder apparently as it is without the appendix.

[E. H. R.]

SOME CONSIDERATIONS ON THE FUNCTIONS OF THE LUNG

ROGER, H., in *La Presse Médicale*, October 6, 1921, describes experiments with animals in whose veins he injected a solution of macerated lung tissue in salt solution. There was a rapid rise in blood pressure, followed by death. Autopsy showed complete clotting of all the venous blood. When a more dilute solution was used there was a fall in blood pressure and the blood became incoagulable. He shows:

1. Either the blood or the serum must neutralize the effects of the injected material in the second experiment.

2. The immunity is an acquired one and cannot be transferred to other animals.

3. The lung produces a thrombokinase.

4. Powdered, desiccated lung applied to an oozing area stops bleeding.

5. Removal of a portion of a frog's lung decreases the coagulability of his blood.

6. Albumin is not present in the sputum in simple bronchitis. It is present in pulmonary tuberculosis, pneumonia, pulmonary edema and cardiac or renal bronchitis. In tuberculosis and pneumonia the albumin is that of the lung parenchyma. In the other conditions it is the albumin of the blood.

7. The albumin present in the blood is an autolytic product.

The author experimented with lung tissue undergoing autolysis. He found that:

1. The macerated lung gradually lost its toxicity to animals injected with it.

2. Its injection caused a momentary rise in blood pressure.

He concludes that the lung tends to maintain a high blood pressure. His experiments have shown the presence in the lung of amylase, catalase, a glycolytic ferment, some proteolytic ferments, explaining autolysis, and a lipase, which splits neutral fats.

Specimens of arterial and venous blood, removed from a dog five hours after eating a meal rich in fats, showed that the venous blood contained 5 g. less fat per liter of blood than the arterial. From this he

argues that the lung also destroys some of the fats, as analysis of the lung does not show an accumulation of fat in the lung tissue.

[E. M. D.]

CHOLELITHIASIS

ALDOR (*Wien. klin. Woch.*, October 6, 1921) presents a brief study of cholelithiasis in its relation to gastric chemistry, and to surgical indications. He concludes that the gall bladder is not to be regarded as a simple reservoir, since its removal leads to functional disturbances which on the one hand express themselves in changes in the composition and excretion of bile and, on the other hand, have as a consequence a genuine disturbance of gastric chemistry. The genesis of cholecystitic and colangitic processes,—and it is these which determine the nature of the pathologic picture,—is not always to be sought in a haematogenous or enterogenous colon infection, but in many clinically characteristic cases in a gastrogenous descending infection. In the determination of indication for surgical intervention, the clinical picture is more important than the topical diagnosis. The author believes that cancer of the gall-bladder is not to be regarded as a complication of gallstone disease.

[R. M. G.]

BIOLOGIC DETERMINATION OF DIET

In a preliminary communication, published as a continued article (*Wien. klin. Woch.*, October 20, 27, November 3, 1921), BERCZELLER and a number of other authors publish a study of diet selection suggested by the difficulties of the food situation in Vienna. They consider successively the active effect of foodstuffs in general, of organic foodstuffs, of the legumes, of the specificity of albumen bodies, and of the accessory foodstuffs. In the biologic determination of diet, they discuss the instinctive choice of food stuffs, especially as between the legumes and the cereals, and the pathologic significance of this distinction. In their study of dietetic technique, they have experimented particularly with soy meal, which contains approximately forty per cent. albumin and twenty per cent. fat. Further, they have studied the biologic technology of bread preparation and have begun a biologic investigation of milk. They discuss the economic significance of their investigations and the organization and object of further experiment.

[R. M. G.]

PAROXYSMAL TACHYCARDIA AND AURICULAR FIBRILLATION DUE TO TOBACCO

LASLETT (*Quarterly Journal of Medicine*, October, 1921) reports two cases in which the above conditions were apparently induced by excessive pipe-smoking. In a man of 48 years, a heavy smoker for many years, frequent daily attacks of tachycardia had occurred for the space of ten days. Investigation showed paroxysmal tachycardia of auricular origin. An unusual feature was the presence of numerous auricular extra-systoles confined to inspiration, and that two attacks were observed to begin during inspiration. The attacks ceased when he cut down on his consumption of tobacco.

In a case of paroxysmal auricular fibrillation, tobacco appeared to be the cause. The condition had persisted for twelve years, when he was seen by Laslett. During the following six months, during which he did not smoke at all, he had no attacks, and had only two in the next eight years, during which period he had gradually returned to his former amount of tobacco, though smoking a milder mixture.

The author calls attention to a publication of Neuhof, who states he has seen sino-auricular block, auricular flutter and auricular fibrillation as a result of tobacco poisoning.

Laslett further reports an instance of a rare condition, paroxysmal tachycardia of ventricular origin, not, however, associated with tobacco. The auricular

rate during attacks was only half the ventricular, indicating a block in the impulses which arose in the ventricles and passed through the a.-v. node to the auricles.

[W. T.]

SOME ASPECTS OF EXOPHTHALMIC GOITER

CAMPBELL (*Quarterly Journal of Medicine*, October, 1921) presents an analysis of 127 cases of hyperthyroidism treated medically during a period of ten years at Guy's Hospital. The cases were followed for from four to sixteen years after the onset. Of the total number 110 were instances of true exophthalmic goiter, the remaining 17 were cases of hyperthyroidism, supervening in cases of goiter of long standing.

The cases of exophthalmic goiter showed the typical symptomatology of the disease. Women were affected more frequently than men in the proportion of 17 to 1. The age indicated was most commonly from 15 to 30, no cases being encountered under the age of ten, and but few after the menopause. Among women it was relatively more frequent among the unmarried, four times as many of this class being affected as would be expected from the proportion of married to unmarried among the general population. The effect of pregnancy on the developed disease was never noted to be unfavorable, and several cases improved during pregnancy. A striking feature was the frequent presence of amenorrhea, which was present in 19 of 31 cases in which notes were available on this point. This is in striking contrast to other statements in the literature; Möbins, for example, declares that amenorrhea is not more common than in other diseases. All these facts point strongly to the gonads as being an important factor in the disease, though the *modus operandi* remains obscure.

A history of chorea and mitral stenosis was much commoner in these patients than in the other hospital patients, and there was a greater liability to acute infections. An infectious origin of the disease, however, could be assumed in only one instance, in which repeated attacks of tonsillitis had occurred, and the symptoms of exophthalmic goiter receded promptly after tonsillectomy.

The symptomatology was the usual one. Fever was not uncommon in the more severe cases, either in the form of a moderate pyrexia lasting a week or two, or as sudden sharp rises of temperature lasting a few hours. Acute mental symptoms occurred in ten per cent., and were usually of serious import. Acute mania or acute confusional insanity were the most common forms. Myxedema in a partially developed form was noted in two cases.

The average duration of the disease was three years, the most acute symptoms being seen usually during the first year, which also showed the highest mortality.

The end-results were as follows: Cured, 8 per cent.; almost cured, 30 per cent.; much improved, 34 per cent.; not improved, 13 per cent.; died (of exophthalmic goiter), 15 per cent. A comparison with the end-results of cases treated surgically at this hospital showed only slightly better figures for the latter, although the *immediate* results were very striking. In spite of this, the author is in favor of operation, in selected cases, on account of the saving of time and the lessened danger of intoxication. It should be noted that these results were obtained some years ago, since when improvement in operative technique has lowered the mortality and improved the end-results.

The cases of hyperthyroidism differed in important respects from those of exophthalmic goiter. The average of onset was later, being 37 years, and that of the appearance of the goiter was 22 years. They showed only a few of the important symptoms, exophthalmos being noted in only 70 per cent., and seldom to a marked degree, while tremor was less frequent, tachycardia less marked, and excessive sweating and diarrhea absent. The prognosis was also much more favorable and the mortality practically nil.

[W. T.]

THE DIAGNOSTIC VALUE OF THE SUGAR CONTENT OF THE CEREBRO-SPINAL FLUID, ESPECIALLY IN ENCEPHALITIS LETHARGICA.

COOPE (*Quarterly Journal of Medicine*, October, 1921) reviews the literature and reports the results of his own observations. He agrees with Hopkins and Von Jaksch in placing the normal sugar content at 60 to 80 mg. per 100 cc., regarding the French figure of 46 mg. as too low. The discrepancy is probably due to difference in methods. The figures seem to be from 10 to 40 mg. lower than those for the blood. French observers have reported high figures for the cerebro-spinal fluid in encephalitis lethargica and regard this finding as of diagnostic value. Coope, in 11 cases of this disease found figures ranging from 54 to 94 mg., averaging 74 mg. He found figures quite as high in a miscellaneous group of diseases without organic involvement of the central nervous system.

In acute meningitis and tuberculous meningitis, on the other hand, he found invariably a well-marked reduction of the sugar.

He concludes that a "high" sugar content is not diagnostic of lethargic encephalitis, but that a low figure, provided that the specimen is fresh and uncontaminated, indicates infection of the meninges by some organism capable of reducing sugar. This point is of special value in differentiating between tuberculous meningitis and lethargic encephalitis, for the sugar content is never much reduced in the latter disease.

[W. T.]

THE TOTAL NON-PROTEIN NITROGEN CONSTITUENTS OF THE BLOOD IN CHRONIC NEPHRITIS WITH HYPERTENSION.

WILLIAMS (*Arch. of Int. Med.*, October, 1921) studied the non-protein nitrogen constituents of the blood in eighty-eight patients with chronic nephritis and hypertension or with myocardial decompensation. He finds that chronic nephritis with hypertension and uremia is characterized by a marked increase in the amount of the non-protein nitrogen substances in the blood and a low phthalein excretion. Chronic nephritis of moderate degree with hypertension is associated with a moderate increase in the amount of waste nitrogen in the blood and a lessened kidney function. Cardiac inefficiency without nephritis is associated with a moderate retention of the non-protein nitrogen substances in the blood, particularly the uric acid. In chronic nephritis with clinical and anatomic evidence of disease there is nitrogen retention and renal inefficiency. The presence of albumin and casts in the urine is not necessarily diagnostic of nephritis nor is their absence necessarily indicative of the non-existence of such disease. Improvement of the circulatory disturbances is accompanied by a decrease in the various nitrogenous extractives of the blood, particularly the uric acid. This suggests that at least a part of the damage done the kidneys may be a sequence of the alterations in its nutrition brought about by passive hyperemia.

[L. D. C.]

OXYGEN THERAPY IN PNEUMONIA

BARACH AND WOODWELL (*Arch. of Int. Med.*, October, 1921) report on their studies on oxygen therapy in ten cases of lobar pneumonia and two cases of broncho-pneumonia. In eight of the lobar cases blood gas determinations were done before and after oxygen inhalation. Of these, the arterial oxygen saturation was increased in all except one; in four it was raised to the normal level. The two broncho-pneumonia cases had no arterial anoxemia; in one the arterial saturation was increased, in the other diminished by inhalation. In one of the ten lobar cases a true stagnant anoxemia was demonstrated; in four others

there was a relative lowering of the venous saturation. The difference between the arterial and venous saturation was generally normal or less than normal, indicating that a normal or increased blood flow is usually present in uncomplicated pneumonia.

The most consistent changes in the clinical condition of the patient were the clearing of the cyanosis and slowing of the pulse. The respiratory rate was sometimes slowed, the mental condition was frequently improved, the dyspnoea was not usually relieved. The effect of a single inhalation was temporary. Repeated and prolonged administration produced persistent beneficial changes in the oxygen saturation of the blood, the pulse, breathing, color, comfort and mental condition of the patient. In three patients in whom acute oxygen want followed the development of pulmonary oedema, the prolonged (one to two hours) administration of oxygen resulted in striking clinical improvement and seemed to avert a fatal outcome.

[L. D. C.]

OXYGEN THERAPY IN CARDIAC INSUFFICIENCY AND RELATED CONDITIONS

BARACH AND WOODWELL (*Arch. of Int. Med.*, October, 1921) studied the therapeutic value of oxygen inhalation in cases of cardiac insufficiency. They found that in a normal man the inhalation of oxygen for half an hour caused an increase in the oxygen saturation of the arterial and venous blood. The pulse was slowed but no significant changes occurred in the blood pressure, vital capacity, electrocardiogram, venous carbon dioxide content, or rate of respiration. In seven cases of cardiac insufficiency, an anoxic (arterial) anoxemia was present in all, a stagnant (venous) anoxemia in all except one. Oxygen inhalation regularly increased the arterial saturation. When the anoxic anoxemia seemed due to passive congestion and pulmonary oedema (basal) the arterial saturation was raised to normal in half an hour; where pulmonary oedema was widespread it took from 45 minutes to two hours. Inhalation increased the venous saturation in all except one case of auricular fibrillation. The arterial anoxemia of bronchitis and emphysema occurring in cardiac insufficiency was fully relieved by inhalation, and the venous saturation was correspondingly elevated. The relief of cyanosis and the slowing of the pulse were the outstanding objective changes. The electrocardiogram showed consistent changes in two cases of right fundal branch block. The patients usually said that they felt more comfortable or that their breathing was better, but they were rarely enthusiastic.

[L. D. C.]

OXYGEN THERAPY IN AN EXTREME TYPE OF SHALLOW BREATHING

BARACH AND WOODWELL (*Arch. of Int. Med.*, October, 1921) studied the effects of oxygen inhalation on the blood gases and on the clinical signs in two cases of lethargic encephalitis which developed a rare type of shallow breathing resulting in sudden extreme arterial anoxemia and carbon dioxide retention in arterial and venous blood. The breathing was rapid and jerky; at each inspiration the upper abdomen underwent a double convulsive contraction with a simultaneous twitching of the neck muscles but without any movement of the intercostal muscles during either phase of respiration. There was deep cyanosis and coma. Inhalation of oxygen greatly relieved the arterial anoxemia but had no effect on the steady accumulation of carbon dioxide. An uncompensated carbon dioxide acidosis was demonstrated in one case by a carbon dioxide dissociation curve. The circulation was strikingly improved at first by the oxygen inhalation as a result of the relief of the anoxemia. Later, progressive cardiac failure occurred, apparently related to the carbon dioxide retention. It is evident, therefore, that extremely shallow respiration

interferes not only with oxygen absorption but also with carbon dioxide elimination. [L. D. C.]

IODINE INJECTIONS FOR SEPTIC CONDITIONS

DE CASTRO (*Ind. Med. Gazette*, October, 1921) reports good results with intravenous injections of tincture of iodine in septic infections, even in severe ones of the phagadenic type. He starts with a dose of m V in 1 c.c. normal, salt solution, and increases to mxx in 10 c.c. The injections are given in bad cases every day, in ordinary cases every second day. The changes noticed within 48 hours are marked. An unhealthy looking surface freshens up, sloughs are cast off, purulent discharges stop and healthy granulations appear. Temperature falls to normal and pain disappears. The white blood cells increase rapidly to 20,000 or more. This treatment proved especially valuable in a severe chronic gonococcus salpingitis and in an ischio-rectal abscess which had burst through the wound of an external urethrotomy. In malaria the writer found it of no value. In two instances a severe reaction followed the injection. [L. D. C.]

ELEVEN THOUSAND CASES OF SPINAL ANALGESIA

MORRISON, A. A. (*British Medical Journal*, November 5, 1921) reports on the amazingly large number of 11,000 surgical operations under stovaine spinal analgesia. The advantages of this method, in his opinion, are:

1. Rapidity. By the time that the patient's skin has been painted with iodine and the surgeon has put on his gloves—say, three minutes—the patient is ready.
2. No anaesthetist is necessary. For those 11,000 operations he was his own anaesthetist.
3. Relaxation of the parts. A surgeon who relies on a general anaesthetic has no conception of the facility and simplification of procedure wherewith a splenectomy, a nephrectomy, a hernia, or even a haemorrhoids operation can be performed under spinal analgesia.
4. Absence of vomiting and of shock. Frequently a patient returned to the ward after a nephrectomy will smoke a cigarette immediately.
5. Safety from serious sequelae. In septic operations, such as gangrenous or purulent appendicitis, and in septic wounds necessitating intervention, a general anaesthetic gives rise to acetone and other forms of fatal poisoning, to heart failure, and often, he was sure, to endocarditis with dangers immediate and remote. He desires to emphasize this, for they are factors of the most serious import often unconsidered and denied by surgeons.

In his opinion there is only one disadvantage and that is persistent headache. This he has been unable to eliminate entirely. There are other fancied objections which he does not consider to be real.

[J. B. H.]

EXPERIMENTAL RICKETS IN RATS

KORENCHIEVSKY, V. (*British Medical Journal*, October 8, 1921) presents the results of his experiments in producing rickets in rats with the following conclusions:

1. The results obtained agree in general with the results of the experiments of Mellanby, McCollum, Simmonds, Parsons, Shipley, and Park.
2. Confinement in small cages does not evoke rickets in rats.
3. The introduction of live cultures of *B. perfringens*, *B. sporogenes*, and *B. befermentans* with the food, and of *B. sporogenes* and *B. befermentans* subcutaneously produced no visible effect on the development of rickets in rats.
4. The deficiency of the diet in calcium alone can produce changes in the skeleton of rats which present some resemblances with rickets, especially when the

young rats have originated from a mother kept on the same diet during lactation.

5. Usually deficiency of food in vitamin A produces in rats impoverishment of the bones in calcium, enrichment in water, and osteoporosis with deficient osteogenesis, and in some cases a picture resembling slight rickets. Changes in the skeleton more similar to rickets, and in some cases typical of rickets, were observed in young rats on —A diet, provided their parents had been fed on —A diet during conception, pregnancy, and lactation.

6. Vitamin A has a relation to the metabolism of calcium in the organism and particularly in the bones, and therefore to the development of rickets.

7. A few experiments on the feeding of parents on food deficient in vitamin A or calcium during conception, pregnancy, and lactation suggest that this may start disturbances of metabolism in the child which, if the deficient dietary be continued after birth, result in serious disorders of the skeleton.

8. The changes typical of rickets occur most readily and most frequently in rats kept on a diet deficient both in vitamin A and calcium.

9. Castration performed before the commencement of feeding has no marked influence on the chemical and histological changes in the skeleton of rats fed on a normal diet, on diets deficient in calcium or vitamin A, or deficient in both.

[J. B. H.]

ERYTHEMA NODOSUM: AN ACUTE SPECIFIC FEVER

SYMES, J. O. (*British Medical Journal*, November 5, 1921) discusses the subject of erythema nodosum. The theories concerning this interesting condition are:

1. That erythema nodosum is a manifestation of acute rheumatism.

2. That it is a cutaneous manifestation of a general intoxication due to several widely different causes.

3. That it is tuberculous in origin, a septicaemia due to attenuated tubercle bacilli.

4. That it is a manifestation of syphilis.

He concludes that "the strong points in favour of the theory that erythema nodosum is an infectious fever are the proof that it may be transferred from person to person and may occur in small localized outbreaks and in epidemic waves. Equally convincing is the evidence of a definite seasonal incidence and constant age incidence. The systematic distribution of the rash, the evidence of relapses, and the conferment of immunity are also favourable to this view. On the other hand, one has to explain the constant association of erythema nodosum with other diseases, such as tuberculosis, measles, and minor conditions of ill health.

"The heavy incidence of the disease on girls at and about the age of puberty is difficult to explain on any ground of infection, and we also have to decide whether erythema nodosum and erythema multiforme are but two phases of the same disease, or whether they are two clear and distinct entities."

[J. B. H.]

AN INVESTIGATION INTO THE CIRCULATION THROUGH THE LUNGS

UNDERHILL, S. W. F. (*British Medical Journal*, November 12, 1921) presents the results of the Science Committee of the British Medical Association in regard to this matter, summarizing his work as follows:

1. Ligature of the left pulmonary artery in cats (with the chest open and under artificial ventilation) causes a rise of pulmonary blood pressure of from 25 per cent. to 60 per cent.—usually about 40 per cent. There is no effect on the carotid blood pressure, pulse rate, output of the heart, or its state of dilatation.

2. The healthy heart therefore can accommodate itself without difficulty to sending the same volume of blood through one lung only in a given time, as it previously sent through both.

3. No mechanism producing slowing of the heart

from rise of pulmonary blood pressure was demonstrated in these experiments.

4. If the chest is closed after the artery has been ligatured, the animal remains in good condition—in fact, frequently its condition is improved. Its respiratory rate is usually faster than normal, frequently about double, but the depth tends to be shallow.

5. The saturation of the blood after ligature is about 75 per cent.; if the artificial ventilation is increased (within normal limits), complete saturation can be obtained. This has not been the case, however, with animals in which the chest has been closed and the artificial ventilation discontinued; in these the saturation remains at about 70 per cent.

6. Examination of the lungs shows an increased quantity of blood in the right lung, due to twice the normal volume flowing through it in a given time. The left lung after ligature of the left pulmonary artery, under artificial ventilation, contains almost no blood, except a little in the veins; on the other hand, after the chest has been closed and the animal allowed to breathe naturally, it contains usually more blood than the right lung, exhibiting a varying degree of congestion. This blood comes from the bronchial arteries and stagnates in the pulmonary capillaries.

7. Ligature of the right bronchus (in cats with the chest open and under artificial ventilation) causes a small immediate rise in pulmonary blood pressure without affecting the carotid pressure.

8. The saturation of the blood has always been under 90 per cent., even when the artificial ventilation has been increased.

9. There is, therefore, presumably still a certain amount of circulation through the right lung under these conditions.

[J. B. H.]

SUBDIAPHRAGMATIC ABSCESS

LOCKWOOD, A. L. (*Surgery, Gynecology and Obstetrics*, November, 1921) writes as follows:

Subphrenic or subdiaphragmatic abscess is a grave condition and causes a high mortality. The convalescence of patients who recover is long, tedious, and accompanied by serious complications, such as renal and thoracic lesions which often leave the patient in chronic invalidism.

The serious sequelae of the disease are due to the fact that the condition is not recognized sufficiently early, or is not dealt with promptly and completely.

The condition is secondary to infection elsewhere, and a high percentage of cases follows upper abdominal infection at operation or postoperatively.

Gravity accounts for the selection of the subphrenic area in the development of the abscesses following abdominal soiling.

Every effort should be made to prevent soiling of the subphrenic area during upper abdominal operations, and drainage, particularly of the upper abdomen, should be employed only when absolutely essential.

Subphrenic abscess should be suspected in all patients, who, following abdominal operations, maintain for no obvious reason, an elevation of temperature and pulse.

X-rays should be employed as an early diagnostic aid.

Needling for diagnosis is a dangerous practice, and should be used only to rule out pleural effusions. The needle should not be passed through the diaphragm into the abscess until the patient is on the operating table, then if pus is located, the needle should be left in position and the operation carried on without delay.

More deliberate and protracted operations can be performed with minimum risk to these emaciated and seriously ill patients under paravertebral anaesthesia, than under general anaesthesia.

A wide exposure of the abscess area is necessary.

Efficient drainage must be secured.

[E. H. R.]

Book Reviews.

The Manner of Man that Kills. By L. VERNON BRIGGS, M.D. Pp. 444. Boston: Richard G. Badger. 1921.

This excellent volume has a double object and fulfills it admirably. In the first place it gives the detailed history of three famous criminals and their crimes, namely, Spencer, Czolgosz and Richeson, and in the second, these furnish a text in a plea for the study of the criminal and the motives which made him one, rather than the crime itself, for only in this manner can the insane criminal be understood and society protected. Dr. Briggs has accumulated and carefully analyzed an immense amount of material in the history of these three crimes, whose sensational and apparently unmotivated nature stirred the community so deeply and widely.

It is pointed out that when these three criminals are carefully studied, that they could have been prevented had the seriousness of their mental condition, in its insidious onset, been recognized early enough in the lives of these men, and measures immediately taken for their treatment and hospital care. This could only have taken place, if at the time the medical schools had made compulsory a well-planned course in psychiatry, instead of limiting the study of mental disease to a few didactic lectures and occasional visits to a hospital. Very fortunately, this state of affairs is now rapidly passing and nearly all the well-trained physicians of recent years now possess the fundamentals of psychiatric diagnosis.

In using these three cases as a paradigm for a better training in and a wider and more sympathetic social outlook on mental diseases, the author is to be congratulated both for his labors in accumulating important data and for his serious plea for education in psychiatry leading to the prevention of crime committed by subjects with mental disease. Modern psychiatry is now solving these problems by a study of early environment, of personality traits and of the conscious and unconscious forces out of which the psychoses develop. When such knowledge becomes as much a part of a physician's training as the diagnostic procedures in internal medicine, many petty and more serious offences against society may be prevented by early recognition before the disease has become incurable, in much the same way as we are able to diagnose tuberculosis in its incipient stage, without waiting for a serious hemorrhage to call attention to the underlying devastation.

The Life of Jacob Henle. By VICTOR ROBINSON, M.D. Pp. 117. New York: Medical Life Company. 1921.

There is nothing in literature more entertaining than a "human document," and the "human document" before us gives more than a glimpse into the varied activities and experiences of a man's life, and a very unusual man at that, from the standpoint of lasting accomplishment.

To come into contact, if even through the pages of a book, with a man whose chief teacher and most influential early adviser was the famous Johannes Muller, and among whose friends and pupils were numbered Cuvier, Humboldt, Felix Mendelssohn, Theodor Schwann, Kolliker (his prosecutor at Zurich), Wilhelm Waldeyer, and Robert Koch, for instance, is to come into a refreshing, stimulating and cultured influence. In the present essentially and boastfully "practical" age, such an experience is as memorable as it is unusual. And just such an experience is possible to the readers of this interesting story told by Victor Robinson:—for in addition to the versatile and entertaining host himself, Jacob Henle, one meets his friends and associates, his teachers and pupils, and realizes that the age in which Henle lived was an era of intellectual giants, of pioneers in the search after Nature's secrets. The story is impressively told, the first few pages being rather flippant; but when the author gets really launched in his work he exhibits a familiarity with his subject, an honest enthusiasm suggestive of personal knowledge and affection, a something more than a mere biographer is likely to get and reveal: and he carries his reader along with a sympathy that temporarily effaces self and ordinary interests. The unenlightened may resent the claim that Henle was "one of medicine's noblest figures," but after reading the ninth and concluding chapter of the book on Henle's "Contributions to Science," and realizing the vast research work, and this thoughtful, analytical, and constructive addition to medical literature, no one can resent his being placed in the foremost rank of truly scientific and great minds.

The small volume, of which there is only a very limited edition on sale, is worth more than the short evening needed for its perusal.

Aids to Operative Surgery. ORRIN. New York: William Wood & Co. 1921.

This book is one of a series known as the "Students' Aid Series." Operative surgery is considered in various regions, and the more important operations for each region are mentioned. A complete description of the operation is not given. However, a clear, concise outline of the chief steps in the operation makes it a worth-while book for students.

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ARE TECHNICIANS PRACTISING
MEDICINE?

LABORATORY technicians in some instances may be practising medicine, but have not always felt obliged to secure state registration. Even scientific workers educated in medical schools and performing technical details involving medical knowledge, and being paid for that medical knowledge, have construed the practice of medicine as dealing directly with the application of curative agents, not realizing that the results of study may be applied in bringing to bear on some case the remedial resources of medicine in its broader aspects. Even some well-informed people construe medicine as the practice which involves giving remedies or applying surgical procedures, and a common defense offered in court in some cases has been that the practitioner only gave advice and did not use drugs, or in the case of the chiropractor that he did not diagnose but simply analyzed the spine.

Recently a person, to whom had been given the degree of M.D., acting as a pathologist in a hospital, contended that since pathology dealt with the results of disease, and no living patients were studied, that it was not necessary for her to be registered. The matter was referred to the Attorney-General and the opinion rendered is herewith submitted:

"It is, therefore, my opinion that a person 'acting as a pathologist' should be registered under the law providing for medical registration."

This decision opens up the probability that other workers in hospitals or medical schools must secure registration under the Massachusetts law, or be in danger of prosecution.

LETTER OF THE ATTORNEY-GENERAL.

Dear Sir:

I acknowledge receipt of your communication wherein you request an opinion on the following question:

"Should a person employed by the Department of Mental Diseases, for the purpose of making autopsies, reporting on findings, and acting as a pathologist, be registered under the law providing for medical registration?"

G. L., c. 112, §§ 2-12, provide for the registration of physicians and surgeons. Section 6 provides in part as follows:

"... whoever, not being lawfully authorized to practice medicine within the commonwealth and registered under section two, . . . holds himself out as a practitioner of medicine or practices or attempts to practice medicine in any of its branches, . . . shall be punished by a fine of not less than one hundred nor more than five hundred dollars or by imprisonment for three months, or both. . . ."

The Standard Dictionary defines a pathologist as "one who is learned or skilled in pathology." Pathology is therein defined as "the branch of medical science that treats of morbid conditions, their causes, symptoms, nature, physiology, and anatomy. . . . It embraces also as special departments morbid anatomy, etiology, nosology, and therapeutics."

"Medicine relates to the prevention, cure and alleviation of disease, the repair of injury, or treatment of abnormal or unusual states of the body and their restoration to a healthful condition. It includes a broad field. It is not confined to the administering of medicinal substances or the use of surgical or other instruments. It comprehends 'a knowledge, not only of the functions of the organs of the human body, but also of the diseases to which these organs are subject, and of the laws of health and the modes of living which tend to avert or overcome disease, as well as of the specific methods of treatment that are most effective in promoting cures.' . . . In order to practice medicine one need not cover the

entire field of the science. If he devotes himself to a very restricted part of it, he still may be found to practice medicine. It is a matter of common knowledge that there has been great specialization in that profession in recent years. To that effect are the decisions."

Opinion of the Supreme Court in *Commonwealth v. Zimmerman*, 221 Mass. 184.

To the same effect see *Commonwealth v. Jewelle*, 199 Mass. 558; *Commonwealth v. Porn*, 196 Mass. 326; *People v. Gordon*, 194 Ill., 560; *People v. Allcutt*, 189 N. Y. 517.

It is, therefore, my opinion that a person "acting as a pathologist" should be registered under the law providing for medical registration.

Very truly yours,

J. WESTON ALLEN,
Attorney-General.

PUBLIC HEALTH OFFICIALS AND POLITICS.

THE publication in the daily papers of the purpose of a candidate for the office of mayor of the City of Boston, if elected, to remove the Commissioner of Health, was disconcerting, since, so far as has been learned, no qualifying statement was made public.

Our system of government properly gives to a mayor the power to select heads of important departments in order that an administration may be harmonious and effective, but the responsibilities of office also carry obligations to the citizens to provide that kind of service which will safeguard vital interests. Good citizenship should lead an executive to rise above personal considerations or the political exigencies when matters of public service are in the balance. The oath of office does not always seem to mean much to an official with ambitions for future advancement. It may seem utopian to expect unselfish purposes in the mind of an elected executive, but many of our voters would hail the evidence of a sense of obligation to the great problems of health.

We are not so much concerned with the individual administrator of a health department but rather with the efficiency of that branch of public service, and voters may reasonably demand that a change should be made only with the expectation of greater benefit.

Massachusetts was once blessed by an executive in the person of Ex-Governor, now Senator David I. Walsh, who said that he would not play politics with the health of the people of this Commonwealth, and in every instance when health was at stake he resolutely set himself against political interference with the admin-

istration of public health. He welcomed advice from those competent to give it and acted in accordance with the best information at hand. No one ought to prejudge an official's action and it is hoped that the health of the City of Boston and the administration of our hospitals will either be left in the hands of those already found competent to discharge the high responsibilities of these vital matters or, if a change is made, that men will be secured who give promise of greater ability.

New York claims to be the most healthful city among the large cities of the country. Boston ought to be equal to New York at least. It can be made so under a good administration unhampered by political interference.

Any one who interferes with good health administration is as responsible for disease and death as any other person who knowingly and selfishly allows his own behavior to become a menace to others. A man who leaves a stick of dynamite where it may do harm may be less blameworthy than the official who imperils the lives of people through ineffective health service. Unless otherwise demonstrated, let us hope that pre-election threats will not govern public action.

NEWS ITEMS.

THE RED CROSS COURIER.—Immediately after New Year's the American Red Cross will begin publication of *The Red Cross Courier*—a weekly newspaper of national circulation, which will be the official organ of the organization. This publication will take the place of all bulletins now published at National and Division Headquarters.

Authoritative articles on Service to Ex-service Men, Nursing, Health Service, First Aid, European Child Welfare and other subjects of interest to the public generally, and to members of the medical profession in particular, will appear from time to time in its pages.

Subscriptions should be sent to *The Red Cross Courier*, American Red Cross National Headquarters, Washington, D. C.

COMMITTEE ON PUBLIC HEALTH FOR 1922.—The following named members of the legislature have been appointed on the Committee on Public Health.

Senate: Pearson, of Middlesex; Hardy, of Worcester; Griswold, of Franklin and Hampshire, and Babb of Suffolk.

The House: Glazier, of Hudson; Ryder, of Middleborough; Hunnewell, of Boston; Early, of Newton; Abbott, of Andover; Hale, of Springfield; Bell, of Somerville; Kerr, of Lawrence; Bartlett, of Brockton; Kelleher, of Cambridge, and Cortanza, of Boston.

SOME MODERN METHODS OF DISSEMINATING INFORMATION.—During Cancer Week, Dr. Charles A. Powers of Denver, President of the American Society for the Control of Cancer, delivered a fifteen minute address into a transmitting apparatus of a telephone plant and was heard by thousands of people in the Western states, gathered in groups.

Many posters advising the people about cancer were displayed in street cars all over the country.

One speaker was transported from place to place in Nebraska by aeroplane.

Free lectures were advertised by telephone over a radius of thirty miles in one evening through the attention secured by the S. O. S. call.

WORCESTER DISTRICT MEDICAL SOCIETY.—Regular meeting was held at 4.15 P.M., January 11, 1922, in Red Men's Hall, Worcester, Massachusetts, 19 Pearl Street.

PROGRAM.

1. End-results of the various methods of treatment of surgical diseases of the stomach and duodenum, with lantern demonstrations.

Dr. A. J. A. Hamilton, Boston.

2. A discussion of the medical treatment of stomach ulcers.

Dr. Lester C. Miller, Worcester.

The papers were discussed by Drs. J. Arthur Barnes, F. W. George, and others.

J. J. GOODWIN, *Pres.*

A. W. ATWOOD, *Secy.*

HARVARD MEDICAL SOCIETY.—A meeting was held in the Peter Bent Brigham Hospital Amphitheatre (Van Dyke Street entrance), Tuesday evening, January 10.

PROGRAM.

"Back Strains," Dr. Z. B. Adams.

LAWRENCE REYNOLDS, *Secy.*

ANNUAL MEETING OF THE MASSACHUSETTS ASSOCIATION, BOARDS OF HEALTH.—The annual meeting of the Association was held at Hotel Brunswick on January 5, 1922.

Officers elected for the ensuing year: Pres., Capt. Wm. L. Young of Springfield; 1st Vice Pres., Dr. Geo. L. Tobey of Clinton; 2nd Vice Pres., Dr. Francis D. Denny of Brookline; Secy., Dr. Wm. H. Allen of Mansfield; Treas., Dr. Francis G. Curtis of Newton.

Dr. F. Geo. Curtis read a very comprehensive paper: "The Legal Limitations and Authority of Massachusetts Local Boards of Health."

There was brief presentation by Dr. Crossman and Mr. Cameron of the bovine tuberculosis situation in Massachusetts and neighboring states. This subject will doubtless be taken up more in detail at a subsequent meeting.

W. H. ALLEN, *Secretary.*

THE ANNUAL STAFF MEETING OF THE BOSTON DISPENSARY.

ABOUT 75 members of the Medical and Surgical Staff of the Boston Dispensary attended the annual Staff banquet at the Copley Square Hotel on Tuesday evening, January 3rd. Dr. William E. Preble, retiring President of the Staff, presided.

The speaker of the evening was Dr. Timothy Leary, Medical Examiner of Suffolk County, who gave a most interesting address on "Some of the Experiences of a Medical Examiner."

Officers for the ensuing year were elected as follows: Dr. A. H. Crosbie, President; Dr. A. K. Paine, Vice President; Dr. P. J. Kingsley, Secretary-Treasurer.

The Medical Advisory Council of the Staff for 1922 is composed of Dr. A. H. Crosbie, Dr. A. K. Paine, Dr. William E. Preble, Dr. Henry J. Perry, and Dr. Hilbert F. Day.

Frank E. Wing, Director of the Dispensary, reported that during the past year, 161,455 visits have been made by patients to the Dispensary; 4,873 visits have been made by District Physicians to patients in their homes; and the Boston Dispensary Hospital for Children, Dr. Maynard Ladd, Physician-in-chief, has given 8,179 days' care to 1,064 children. It was also announced that additional x-ray equipment has been installed, which will provide complete radiographic and fluoroscopic facilities for patients attending morning and evening clinics, and also for private work to members of the Staff and others, at moderate rates for patients of limited means.

Very truly yours.

FRANK E. WING,
Director.

THE CUTTER LECTURES ON PREVENTIVE MEDICINE.

THE Cutter Lectures on Preventive Medicine by Charles Wardell Stiles, Chief, Division of Zoölogy, Hygienic Laboratory, U. S. Public Health Service, Washington, D. C., entitled "The Public Health Status of Amoebic Dysentery in the United States as Potentially Influenced by the World War," was delivered Tuesday, January 17, 1922, and the second, "The Underlying Principles of Excreta Disposal," on Wednesday, January 18, 1922, at the Harvard Medical School.

These lectures are given annually under the terms of a bequest from John Clarence Cutter, whose will provided that the lectures so given should be styled the 'Cutter Lectures on Preventive Medicine and that they should be delivered in Boston and be free to the medical profession and the press.

TUBERCULOSIS DEATH RATE.

ALTHOUGH statistics show a decline in the tuberculosis death rate, taken as a whole, the Metropolitan Life Insurance Co. calls attention to the increase of this disease among girls between the ages of fifteen and twenty years. The ten-year period, 1911 to 1920, shows that it is in this group alone that adolescent girls show an increase in the death rate. No data relating to the cause have been secured, but the question of the entry of larger numbers of girls into industry is raised and the suggestion made that the draft on vitality at this period of life may be an important factor.

PNEUMONIA AND INFLUENZA.

THE BOSTON CITY HOSPITAL and the Bellevue Hospital, New York, have arranged special pneumonia services which have been placed at the disposal of the Influenza Commission of the Metropolitan Life Insurance Commission. It is quite generally agreed that vaccines do not protect against influenza, but the pneumonia complications need especial study. Groups of pneumonia patients are being treated by special specific methods and an equal number of cases by expectant or symptomatic methods serving as control groups. So far there are some encouraging developments, but further statements are held in abeyance until more facts have been correlated.

NOTES FROM LONDON.

WHITEHALL'S LATEST SPENDING SCHEME.—The Minister of Health has requested local authorities to submit to him a statement showing the total net expenditure which it is estimated would be incurred during 1922-1923 on the supply of a mid-day meal to expectant and nursing mothers, and of milk to infants under 12 months who are not being nursed by their mothers.

It is estimated that for the present year the sum spent on supplying milk below cost price to mothers and children will not fall far short of £400,000. The Minister is not satisfied that the milk now supplied to mothers is always consumed by the person for whom it is intended.

LORD MOUNT STEPHEN'S BEQUEST.—At a meeting of the General Council of King Edward's Hospital Fund for London yesterday, it was announced that the late Lord Mount Stephen had left the residue of his fortune to the Fund. Lady Mount Stephen, in her letter

conveying the news, wrote:—"It is, I believe, practically nearly the whole of his fortune, for the legacies, &c., in proportion, do not amount to anything of importance." During his lifetime Lord Mount Stephen made gifts amounting to £500,000 to the Fund.

The total amount of the grants awarded to hospitals, convalescent homes, and consumption sanatoria was £220,000, an increase of £20,000, as compared with last December.

Messages were read from the King and the Prince of Wales expressing their interest in the efforts to re-establish voluntary hospital finance, and steps were taken by the meeting to reorganize the Fund for the better performance of its new tasks.

Obituaries.

LEANDER MORTON FARRINGTON, M.D.

Dr. L. M. Farrington died suddenly at his office in Manchester, New Hampshire, December 10, 1921, of heart disease, at the age of forty-eight.

The son of Jeremiah and Ellen Morton Farrington, he was born January 8, 1873, in Conway, New Hampshire, where his father was purchasing agent of the Boston and Maine Railroad. Leander had his education at the Portsmouth high school and at Harvard Medical School where he graduated with the Class of 1894, going on to serve as house officer at the Carney Hospital. He joined the Massachusetts Medical Society the year of his graduation, settled in practice in Boston and conducted a clinic in the out-patient department at Carney Hospital while serving as instructor in clinical medicine in Tufts College Medical School. In 1906 he removed to Brookline, in 1911 to Arlington Heights, where he practised off and on until January, 1917, though he was in poor health. Then he moved to Manchester, New Hampshire, where he spent the rest of his life. He was a member of the staff of Notre Dame Hospital, of the board of censors of the Manchester Medical Association. He held membership also in the New Hampshire Medical Society, the Sphinx and Calumet Clubs, in the Young Men's Christian Association and in the Joseph Warren Lodge of Masons, Boston. Although joining the New Hampshire Medical Society in 1917 he kept up his membership in the Massachusetts Society.

During the World War he served on the medical advisory board for the draft board.

Dr. Farrington is survived by his widow, Blanche E. Farrington, and by two daughters.

JOHN ORNE GREEN, M.D.

Dr. J. Orne Green, aurist, died at his home in Boston, January 5, 1922, at the age of eighty. He had been retired for the past ten years and had devoted his time to reading and literary research.

The son of Dr. John Orne and Jane McBurney Green, he was born in Lowell, June 7, 1841. His father was senior physician to St. John's Hospital and a leading practitioner of Lowell. The son was educated in the public schools, at Phillips Exeter Academy and at Harvard, where he received the degree of A.B. in 1863 and M.D. in 1866. After serving as house officer at the Massachusetts General Hospital and studying in Berlin, Vienna, and Würzburg, he settled in Boston, devoting himself to otology, joining the American Otological Society and becoming University lecturer in diseases of the ear at Harvard in 1869. In 1876 he was advanced to instructor and two years later to clinical professor of otology, a position he continued to fill until 1904. He was visiting aural surgeon at the Boston City Hospital until 1901, aural surgeon to the Massachusetts Charitable Eye and Ear Infirmary until 1904, aural surgeon to the Massachusetts General Hospital until 1896 and then advisory and consulting surgeon to the City and to the Eye and Ear Infirmary for the rest of his life.

In his early career Dr. Green translated Schwartz's "Pathological Anatomy of the Ear"; he published "General Principles Governing Operations for Otitic Brain Disease," in 1897; "Bacteriology of Mastoiditis," in 1899; "Abscess of the Cerebellum from Infection Through the Labyrinth," in the same year; he wrote the section on the diseases of the ear for Warren and Gould's "International Text Books of Surgery," in 1890; and a chapter on diseases of the ear for DeSchweinitz and Randall's "American Text Books of Diseases of the Eye, Ear, Nose and Throat." In addition, he made many contributions to periodical medical literature. He joined the Massachusetts Medical Society in 1868 and was placed on the retired list in 1912. At one time he served as president of the American Otological Society. Dr. Green was a skilful operator, a student, and of an unobtrusive personality. He was never married.

SUDDEN DEATHS OF THE SPARLING BROTHERS.

SASKATOON, Sask., Jan. 5—Dr. F. G. Sparling, pioneer resident of Saskatoon, died of heart failure today in Minneapolis, a few minutes after receiving a telegram announcing the sudden death of his brother, Dr. J. H. Sparling in Boston. News of the double tragedy was received by friends of the brothers here tonight.

Dr. John Henry Sparling, who was 59 years old and lived at 144 Huntington Avenue, died January 5, 1922, of heart trouble, from which he had been suffering for the past eight years. He practised medicine up to a few hours before his death.

He was born in Ontario, Canada, son of Mr. and Mrs. James Sparling. He was graduated from the Manitoba Medical College, Winnipeg, Canada. He came to the United States over 25 years ago. He took a post-graduate course in medicine in New York and also at the Rush Medical College, Chicago. He lived in Auburn, Indiana, for two years, but for the past 20 years has practised medicine in Boston.

Dr. Frederick G. Sparling was born in Ontario 57 years ago. He was graduated from the Rush Medical College, being a student at the institution during the time his brother took a post-graduate course there. He had not been practising his profession for several years.

Dr. F. G. Sparling had been visiting at the home of his brother here during the Christmas holidays. He left for Minneapolis last Saturday.

 Miscellany.

 COMMUNICATION OF F. H. McMECHAN
RELATING TO THE COUNCIL OF THE
AMERICAN MEDICAL ASSOCIATION.

THE JOURNAL is in receipt of the following letter and resolutions. In a recent editorial the JOURNAL tried to make the argument that the Council of the American Medical Association will reflect the attitude of the delegates provided that state societies will send men of vision and power of expression.

There are evil tendencies to be combated in every large organization, but one may reasonably hope that the Council of the American Medical Association will never be committed to policies quite so bad as those which are outlined in this circular, but if any large degree of sentiment appears to be in sympathy with dangers outlined, safety lies in eternal vigilance and effective action.

 MEDICAL ADVISORY COMMITTEE.

As the fate of the Practice of Medicine is at stake, this plea is being sent to every Medical Editor and County Medical Society in the United States. Kindly submit it at once to the leaders of your Journal for consideration and action.

TO MEMBERS OF THE MEDICAL PROFESSION:
The Public and Profession are being sold out to—

(1) Foundation control of "full time" medical education.

(2) Lay board domination and the "closed shop" hospital.

(3) Socialized state medicine, subsidized community health centers and hospitals under political or university control.

(4) Legislative dictation of therapy and fees.

(5) Demoralization of medical standards by the expansion of cults.

(6) Exploitation of the specialties by lay technicians.

These menacing movements will succeed unless they are combated by a powerful and united opposition. Your so-called leaders are openly fostering these destructive forces, or more subtly giving them full fling by a camouflaged neutrality.

The American Medical Association belongs to you and you are entitled to have it effectively protect your vital interests. Let your action on this nation-wide referendum carry your mandate.

In the present crisis it is up to every County Society to instruct all Delegates to the American Medical Association meeting at St. Louis, Missouri, May 22-26, 1922, to vote for—

(A) A change of policy and leadership in the American Medical Association pledged to the immediate abolition of the evils mentioned, and constructive protection of medical interests.

(B) The repeal of multiple representation and plural voting privilege by Section Delegates.

(C) The election of Trustees for a period of two years; five Trustees to be elected one year, and four the next, to prevent the Trustees from perpetuating oligarchical rule.

Unless there is a drastic change in the policy and leadership of the American Medical Association the public and profession at large will continue to be misled and misrepresented in the solution of the most pressing problems affecting public welfare and the practice of medicine.

The members of the Scientific Sections are already represented by the Delegates of their respective State Societies, and the voting of Section Delegates is multiple representation, and as such undemocratic and unfair. Unless this plural voting privilege is repealed, the 15 Section Delegates will continue to negative and outvote the Delegates of 15 State Societies having only one Delegate each.

At present three of the nine American Medical Association Trustees are elected each year for a period of three years. There is a proposal before the House of Delegates, introduced at the Boston meeting (1921), to reduce the number of Trustees to seven and have the term of office seven years. Unless the proposed election of Trustees for seven years is nipped in the bud, the American Medical Association will be relegated to "gang rule" for all time to come.

At the Boston meeting of the American Medical Association (1921) those representing the rank and file of the profession lacked only 7 votes of being in control of the House of Delegates, and would have been able to initiate a policy of public and medical protection, if they had not been outvoted by the Section Delegates. In this connection the following editorial note of warning is of pertinent interest:—

... "For the benefit of the large number of State Journals that exchange with us, we desire to call attention to the necessity of determining where the Delegates to the American Medical Association stand on many questions of vital interest to the welfare of the medical profession at large. We have had examples of what some of the leaders in the profession would do to us if they have their way. It is time to know something about the attitude of those whom we send to represent us at the great parent organization, which supposedly represents the voice of a very large majority of the medical men in this country. The trouble of it is we sometimes are betrayed, and if necessary, in order to have our wishes respected, our Delegates ought to go instructed."

(*Jour. Indiana State Medical Society*, November, 1921)

This warning is all the more necessary since the Board of Trustees, at the Boston meeting (1921), reported that they had under consideration the advisability of the American Medical Association paying the expenses of the American Medical Association Delegates. This simply means further subsidizing of the Delegates to control their votes and to thwart the interests of the rank and file. Each State Society, that values representation by its own Delegates, must take action against this political maneuver.

This is your opportunity of putting your power of attorney into the keeping of only such Delegates to the St. Louis meeting, who will openly avow their stand on all vital matters, who will fight your battles and to whom your interests will be a sacred trust.

Self-protection is the first law of life. Act now!

Fraternally yours,

MEDICAL ADVISORY COMMITTEE.

(Signed) F. H. McMechan, M.D.,
Secretary.

RESOLUTION.

WHEREAS the Public and Profession are being sold out to—

(1) Foundation control of "full time" medical education.

(2) Lay board domination and the "closed shop" hospital.

(3) Socialized state medicine, subsidized community health centers and hospitals under political or university control.

(4) Legislative dictation of therapy and fees.

(5) Demoralization of medical standards by the expansion of cults.

(6) Exploitation of the specialties by lay technicians.

THEREFORE BE IT RESOLVED that all the Delegates of the State Medical Society to the American Medical Association meeting in St. Louis, Missouri, May 22-26, 1922, are hereby instructed to vote for—

A) A change of policy and leadership in the American Medical Association pledged to the immediate abolition of the evils mentioned, and constructive protection of medical interests.

(B) The repeal of multiple representation and plural voting privilege by Section Delegates.

(C) The election of Trustees for a period of two years; five Trustees to be elected one year, and four the next, to prevent the Trustees from perpetuating oligarchical rule.

BE IT FURTHER RESOLVED that copies of these Resolutions be sent at once to the Official Organ of the State Medical Society, the Journal of the American Medical Association and the Medical Advisory Committee.

(Signed)

Passed

(Date)

..... Sec'y

GORGAS MEMORIAL INSTITUTE OF TROPICAL AND PREVENTIVE MEDICINE TO BE ESTABLISHED IN PANAMA

OF particularly deep interest to all members of the medical profession and to all others interested in questions of public health and sanitation, is the recent announcement of the plans of the Board of Directors of the Gorgas Memorial for the establishment of a Memorial Institution in the City of Panama for research and the extension of means of prevention of tropical diseases.

Anyone who has seen the old Panama at the time of the abandonment by the French of the work of the first canal, involving so much wasted energy, the loss of thousands of lives and some hundreds of millions of dollars, could not but be struck with the present aspect of Panama, its splendid sanitation, its beautiful cities, its five hospitals, and above all, by the completion of the Panama Canal itself, making Panama one of the most beautiful and salubrious spots in the world.

It is well known to members of the medical profession that the accomplishment of this great

work and the sanitary regeneration of Panama are due to the efforts of the late William C. Gorgas, Surgeon-General of the United States Army, and to his efforts, more than to any other, success for the work must be accredited.

Coupled with his earlier work in Cuba, the accomplishment of General Gorgas in conquering yellow fever and malaria, and conclusively demonstrating the fact that health, even in the tropics, is a purchasable commodity, has sent forth his fame throughout the world. Perhaps no single life has done more for the good and well-being of humanity, and his great attachment for Panama has made the proposed Memorial to carry on the work he so ably started, the most practical tribute which could be conceived to his memory.

The honor for the conception of this idea, and of bringing it into actual existence, belongs to Dr. Belisario Porras, the President of the Republic of Panama, who in the name of his Government has tendered the site, a building, and all required equipment, valued in all at approximately \$500,000. At the request of Dr. Porras, Admiral Braisted, formerly Surgeon-General of the United States Navy, with the coöperation of others equally interested in making this Memorial possible, incorporated the Gorgas Memorial Institute for the purpose, in addition to directing the scientific work, of raising an endowment fund of five million dollars for maintenance. The following officers and directors were elected:

President, Rear Admiral W. C. Braisted, U. S. Navy (retired).

Vice-President, Dr. Franklin Martin, Secretary General, American College of Surgeons.

Directors: Dr. Belisario Porras, President of the Republic of Panama (Founder); Dr. A. S. Boyd, Chief of Surgical Service, Santo Tomas Hospital, Panama; Surgeon-General Hugh S. Cumming, United States Public Health Service; Surgeon-General Merritt W. Ireland, United States Army; Honorable John Bassett Moore, Judge of the International Court of Justice, The League of Nations; Honorable Leo S. Rowe, Director General, Pan-American Union; Surgeon-General E. R. Stitt, United States Navy.

Dr. Richard P. Strong, of Harvard University, chosen to head the Scientific Board, will be assisted by Admiral E. R. Stitt and Lieutenant-Colonel J. F. Siler. Other members of the Scientific Board will be announced at an early date.

The Advisory Board, of which Secretary of State Hughes is Honorary Chairman, consists of the diplomatic representatives of all the Central and South American countries and representative committees of the leading national medical and surgical associations, public health groups, and many Southern societies, by which Gorgas was beloved.

The proposed Memorial will be built adjacent to the new two-million dollar Santo Tomas Hospital, and the use of its complete facilities has been tendered the Gorgas Memorial to aid in the launching of the work.

The Memorial Building itself will consist of a dignified classic structure patterned after the lines of the Pan-American Union in Washington, D. C. It will house the laboratories and provide facilities for the teaching of students from the various tropical countries and from our own leading schools of tropical medicine, such as Harvard, Johns Hopkins, and the University of California.

In commenting upon the field of work before the Institute, Admiral Braisted stated that among the diseases which will be studied in addition to yellow fever and malaria, are dengue, pellagra, beriberi, leprosy, cholera, and the various mycoses. It is the consensus of opinion that tremendous advances can and will be made through the efforts of the research work in this field.

The Tropics, which are so prolific in vegetation of every kind, have been equally fertile in the development of all types and kinds of dread diseases, which tended to make them unsuited to and impossible of habitation until careful sanitation made them safe. They then can become the most desirable, the most attractive, and the most prosperous of abiding places. This very fact has made the City of Panama extremely desirable as a home for the work to be undertaken.

The humanitarian benefits to accrue from the establishment of this wonderful tribute to General Gorgas are almost beyond conception. Its complete success means the fulfillment of General Gorgas' greatest desire, that of eliminating these devastating tropical diseases, and at the same time is a fitting recognition of the world-wide importance that the Profession of Medicine played in the construction of *The Panama Canal*.

AMERICAN MEDICAL EDITORS' ASSOCIATION.

THE American Medical Editors' Association has been appealed to, to assist in establishing a Gorgas Memorial.

It is very essential that extensive publicity be given to this movement, and it has the hearty approval of the American Medical Editors' Association.

It is not only soliciting the aid of the doctor but the influential layman through the medical profession.

There is absolutely nothing commercial in this project, but a great scientific and humanitarian undertaking, and I am soliciting your hearty coöperation in lending the same aid in the way

of publicity as you did during the war in helping the Surgeon-General's Office secure the necessary number of men for the Medical Department of the U. S. Army.

Material will be sent to you from time to time, as the plan progresses, and I wish you would give it hearty support. Any details you may wish will be cheerfully given you, either by myself or the committee in charge.

We are particularly anxious that this information will catch your January issue.

Most cordially yours,

AMERICAN MEDICAL EDITORS' ASSOC.,

J. MACDONALD, *Sec'y & Treas.*

THE KENTUCKY MEETING OF THE NATIONAL HEALTH EXPOSITION.

THE National Health Exposition, occupying 60,000 square feet of floor space, will be held in the Jefferson County Armory, at Louisville, Kentucky, February 1-9, 1922. This is under the auspices of the United States Public Health Service, State Board of Health of Kentucky, Jefferson County Board of Health, and the Health Department of the City of Louisville. It will include exhibits in hospitalization, nursing, dentistry, medicine, and pharmacy. The University of Louisville, the public school system, and various local, state and national health organizations will participate.

The annual conference of the city and county health officers, the annual convention of the Kentucky State Public Health Association, and other health meetings are already scheduled in connection with the Exposition.

An institute will be conducted by the United States Public Health Service, and its program will include:

Dr. M. J. Rosenau, Dean of the Harvard School of Public Health; Dr. Josephine Baker, Director of the Department of Child Hygiene, New York City Board of Health; Dr. William A. Evans, former health officer of Chicago, and the most distinguished public health editor in America; George T. Palmer, President of the Illinois Tuberculosis Association and Director of the Bureau of Tuberculosis of the Illinois State Board of Health; Dr. Frederick E. Greene, Secretary of the Council on Health and Public Instruction, American Medical Association; Dr. Valeria H. Parker, Director of the Interdepartmental Board of Social Hygiene; Dr. John H. Stokes, distinguished syphilographer of the Mayo Clinic; Dr. Frankwood Williams, Director of the National Association of Mental Hygiene; Dr. W. S. Rankin, State Health Officer of North Carolina, a member of the Council of Health and Public Instruction of the American Medical Association and recently President of the American Public Health Association; Dr. John Dill Robertson,

Health Officer of Chicago; Dr. John R. McDowell, Director of Health for the Lake Division, American Red Cross; Dr. John R. McMullen, United States Public Health Service, and Miss Frances Brink, Director of the National Organization for Public Health Nursing.

A winter vacation could be profitably spent in attendance at these meetings. Detailed programs may be obtained of the United States Public Health Service or Dr. A. T. McCormack, Louisville, Kentucky.

THE ROCKEFELLER FOUNDATION INTEREST IN MEDICINE.

IN the United States there is a medical school for every 1,125,000 inhabitants. In Canada there is one for every 900,000. As regards the medical students, the proportion is in the United States, one for every 8,000 population, and in Canada, one to 3,700. The situation, however, is reversed when it comes to doctors, the proportion being one to 720 in the States and one to 1,050 in the Dominion.

It is estimated that Canada needs 300 new doctors each year. This number can easily be supplied by the existing medical schools, providing their resources are increased. It is also necessary, in Canada, as in the United States, that a way be found to distribute physicians more widely and to bring preventive medicine, hospital care, and medical and nursing service within the reach of the too generally neglected rural population.

After it had been decided which of the Canadian institutions should be aided, each of the latter was asked to prepare its own plan of future development. Towards the realization of these plans, the Rockefeller Foundation made the following contributions: to Dalhousie University, Halifax, \$500,000; to the medical school of McGill University, Montreal, \$1,000,000; to the medical school of Toronto University, \$1,000,000, and to the University of Manitoba, Winnipeg, \$500,000, which was supplemented by government grants. In addition to this, the University of Alberta, which is expanding its course from a partial to a full curriculum, was granted \$25,000, and an equal amount was accorded to the newly organized University of Montreal, which is a French Catholic institution, for its pre-medical courses. The Foundation has also made an appropriation of \$2,000,000 for medical education in Canada, the interest of which is to be devoted to annual subsidies, fellowships, etc., pending the distribution of the principal.

The world activities of this Foundation cover ten sections for malaria, twelve for county health work, six for yellow fever, one for tuberculosis, one for other health work, three for public health education. It entirely supports

one medical school, aids eleven, and five pre-medical schools. It aids twenty-seven hospitals and provides assistance for three scientific equipments and medical journals, according to published data of the Red Cross.

AN INTERESTING RELIC.

Jan. 3, 1922.

Editor of *The Boston Medical and Surgical Journal*:

Does the enclosed Paris price list of 1839, or any part of it, have interest for the present generation? If so, it is at your disposition.

Your very truly,

W. S. BIGELOW,
56 Beacon Street, Boston.

ADMIS À L'EXPOSITION DE 1839, MENTION HONORABLE.
FONTRONNE,

PRÉPARATEUR D'OSTÉOLOGIE HUMAINE ET COMPARÉE
Ci-devant Rue de l'École-de-Médecine, No. 4.
Présentement Même Rue, 3, sur la place, en face de
l'École.

SAVOIR:

Squelettes Humains.

D'homme dit à la Beauchêne, dont toutes
les parties se détachent les unes d'avec les
autres, 500 "
Pieds et mains, la paire de 25 à 30 "
Tête coupée horizontalement, verticalement
et transversalement et coupe des sinus, avec
les préparations de l'oreille moyenne et interne, de 30 à 40 "
Préparation de l'oreille moyenne et interne,
les temporaux seuls montés sur support,
de 15 à 20 "

Articulations Ordinaires.

D'homme ou de femme 100 "
D'homme ou de femme, de 50 à 80 "
Bassin naturel de femme avec ses ligaments,
de 15 à 18 "
Tête de fœtus de 2 f. 50 c. à 5 50 "
Fœtus sous un cylindre de 15 à 20 "
Tableau de fœtus désarticulé, de 20 à 25 "
Tête adulte de 8 à 12 "
Id. première dentition 10 "
Ratelier de dents à jour monté sur un support
..... 18 "
Tête naturelle tracée pour étude de phrénologie,
..... 20 "
Tête désarticulée de 15 à 20 "
Préparation de la face de 1re et 2me dentitions,
sculptée, 20 "
Tête entière avec préparation de la 1re et
2me dentitions, sculptée, de 25 à 30 "

NEW YORK MEDICAL ASSOCIATION NOT MEDICAL SOCIETY OF THE COUNTY AND STATE OF NEW YORK.

Mr. George W. Whiteside has caused to be published a statement that there is confusion in the minds of some people as to the identity of the New York Medical Association with the Incorporated Medical Society of the County of New York and the State of New York. The only medical society that was authorized by law to adopt the name New York State Medi-

cal Association was merged by act of legislature with the Medical Society of the State of New York in 1905. Further, it is stated that Dr. John P. Davies is not authorized to issue any bulletin or to speak for either of these legally constituted societies.

RESOLUTIONS OF THE MASSACHUSETTS MEDICO-LEGAL SOCIETY ON THE DEATH OF PROFESSOR WILLIAM F. WHITNEY.

DR. WILLIAM F. WHITNEY was an associate member of the Massachusetts Medico-Legal Society for twenty-two years. His profound knowledge of pathology and his great skill in the application of chemistry to the purposes of the law brought him a wide field of experience and caused him to be sought frequently as a consultant. At such times he was modest, resourceful, and efficient.

A teacher of young men, he was wise, sympathetic, stimulating; an expert in a highly technical branch of medicine, he was singularly clear and lucid in its exposition; a referee in dispute involving the chance of death in another, he was calm, careful, judicial, convincing.

His kindly manner, his dignified and courtly bearing won from his associates a feeling of high regard and worthy esteem.

Then be it resolved:

That these words be adopted as the sentiment and belief of this Society.

That copies of these resolutions be sent to the BOSTON MEDICAL AND SURGICAL JOURNAL and to the family of the deceased.

GEORGE L. WEST, M.D.

A. ELLIOT PAINE, M.D.

GEO. BURGESS MAGRATH, M.D.

COMMITTEE ON RURAL HEALTH AND MEDICAL SERVICE.

The Committee on Rural Health and Medical Service met in Room 458 of the State House, Monday at 4 P.M., January 9th. Minutes of the last meeting were read and also a statement as to the inception and formation of the committee, and a report of the activities already undertaken was given. Considerable discussion was given as to the question of an organization composed of both the laity and physicians continuing work in fields which medical organizations, sooner or later, would enter. The present weakness of purely medical organizations was spoken of and the consequent difficulty in meeting so large and complex a problem as that of adequately and satisfactorily extending medical service to the many neglected or poorly served rural districts. The part which the laity have in hospital organization and man-

agement, in the raising of funds for buildings and maintenance was called attention to and the opinion was expressed that the coöperation of the laity was desirable in this enterprise, that a great deal of constructive effort would be needed in arousing special and general sentiment to produce the best results. Mrs. W. L. Putnam moved that the committee continue with the object of educating the laity as to the importance of improvement of medical service in rural districts until such time as the Massachusetts Medical Society is prepared to undertake the improvement of this service, and the vote was carried. Upon the motion of Mr. H. C. Parsons, it was voted that an executive committee be appointed to take the place of the finance committee. Mr. Parsons, Mrs. Putnam and Dr. A. W. Gilbert, with the officers, were appointed members of that committee. It was also felt that the membership of the organization should be enlarged. On account of the exactions of other duties, Dr. Cannon desired to resign the office of President which he has so conscientiously filled and Dr. E. H. Bigelow was elected in his stead. Meeting adjourned.

PAUL W. GOLDSBURY, *Secretary*.

NEW ENGLAND OPHTHALMOLOGICAL SOCIETY.

The annual meeting of the New England Ophthalmological Society was held at the Massachusetts Charitable Eye and Ear Infirmary, 233 Charles Street, Boston, on Tuesday evening, January 17, 1922, at eight o'clock.

PROGRAM.

1. Hospital cases.
2. Demonstration of slit lamp, large Gullstrand ophthalmoscope, telescopic lenses and magnifiers, scleral lamp, and eye microscope.

W. HOLBROOK LOWELL, *Secretary*.

DR. WILLIAM SEAMAN BAINBRIDGE.

UNDER date of November 29, 1921, the Bureau of Navigation received from the French government the decoration of the officer's cross of the Legion of Honor conferred upon Commander William Seaman Bainbridge, M. C., U. S. N.-R. F. During the World War, and, in addition to other duties, he worked with the allied armies at the various fronts and prepared a "Report on the Medical and Surgical Developments of the War," which was published by the Bureau of Medicine and Surgery. He was the U. S. representative at the Congress International de Médecine et de Pharmacie Militaires, held in Brussels, during this past summer. He has been actively engaged in the rehabilitation and reconstruction work at the Naval hospital in New York.

BOSTON MEDICAL LIBRARY.

At the annual meeting of the Boston Medical Library held, January 10, 1922, these officers of committees were elected: President, Dr. George H. Monks; Vice-Presidents, Dr. William N. Bullard, Dr. Homer Gage, Dr. Henry Jackson; Secretary, Dr. Walter L. Bursage; Treasurer, Dr. Richard G. Wadsworth; Librarian, Dr. John W. Farlow; Executive Committee, Dr. John W. Bartol, Dr. John W. Cummin, Dr. Edward C. Streeter; Committee on Medical and Social Meetings, Dr. Malcolm Storer, Chairman, Dr. Zabdiel B. Adams, Dr. George B. Cutler, Dr. Hilbert F. Day, Dr. Frank A. Pemberton; Committee on Membership and Elections, Dr. Stephen Rushmore, Chairman, Dr. Anna Q. Churchill, Dr. Frederick A. Keyes, Dr. Richard H. Miller, Dr. Conrad Wesselhoeft.

Dr. Harold C. Ernst gave an informal talk on "Immunity" that was much enjoyed by the sixty members and guests present.

The Library has a membership of 833, is in a prosperous condition, except that the funds given to the Library provide for the purchase of books, rather than for coal, salaries and upkeep, and the building is so crowded with books and pamphlets that the other activities of the institution are hampered.

There are 110,827 books and 69,796 pamphlets in the building, all at the service, not only of the medical profession, but of any citizen of New England.

Correspondence.

A SUGGESTION FOR MEDICAL ORGANIZATION.

Mr. Editor:—

Will you kindly allow me to express a few ideas in the columns of the JOURNAL apropos to those of Dr. Upton in the JOURNAL of December 29th?

To my mind, the Massachusetts Medical Society should comprise all the regular practitioners of the State of Massachusetts, or as many as can possibly be induced to join it. It should be an organization composed not simply of the physicians of the cities and other large centers of population of the Commonwealth,—the men of wealth, the men of large medical practices and large medical incomes,—but it should be composed as well of men in country practice and those of small practices and of small medical incomes everywhere in the state. All reputable physicians should be encouraged to band themselves together for their personal benefit and for the benefit of the profession as a whole. These are times when numbers alone count, when working together: as can be seen by the power developed of late years by the labor organizations of the country. Clouds of ominous import to the medical profession lower on the horizon, clouds which can be dispelled only by the united and vigorous effort of physicians themselves. As stated by a recent correspondent to the JOURNAL, "Our privileges and prerogatives are being taken from us day by day. A mass of legislation which many of us consider hostile to our interests is being constantly proposed and not opposed, or feebly opposed by our alleged spokesmen. We get no help

or promise of help in these matters from our State Society or our National Society."

Let us not, then, place any impediment in the way of inducing every reputable physician of the Commonwealth to register himself as a member of the Massachusetts Medical Society.

The financial side of medicine may not seem of much importance to the physician who has inherited or married a fortune, or to one who has a lucrative practice, or one who holds a salaried position bringing him a good income, but to the rank and file of the medical profession it is a very important matter.

The annual dues of the Massachusetts Medical Society have been steadily mounting of late years. Let us not make them so burdensome as to keep out of the Society worthy men or drive out any such men already in it. If there are features in connection with the Society that certain members wish to enjoy, would it not be fairer for them to finance these features themselves rather than to force the other members to help in financing them when those members may not be in a position to take advantage of the features or would prefer to economize to that extent?

Let us labor to make the Massachusetts Medical Society not an exclusive but an inclusive society. Let the fee simply for membership in the Society be a matter distinct from any side issue connected with it—a fee purposely made nominal that it may be an inducement to all the reputable physicians of Massachusetts to join the Society and thus band themselves together for the protection and general betterment of the profession as a whole. The proposition of Dr. Upton in the December 29th issue of the JOURNAL, and of Dr. Ellson at an earlier date, that a separate association of physicians be formed in an effort to secure material advantages of benefit to the medical profession, should be construed, to my mind, as a rebuke to the Massachusetts Medical Society and to the American Medical Association as well. No such separate organization should be needed, but every effort should be made and every inducement offered to gather into the folds of the state and national societies all eligible physicians and induce them to work unitedly for the common good, financial, legislative, or other.

Every physician is, or should be, heartily in favor of scientific improvement, but let us not allow our heads to be so high in the clouds of such improvement that we fail to see the present needs of the majority of the medical profession for financial and legislative betterment.

O. C. B. NASON, M.D.

East Foxboro, Mass.

[COMMENT:—The JOURNAL is the proper vehicle for the publication of opinions of policies and criticisms of action or lack of action of the officers of the Society. The critic should, however, be very sure that the statements and arguments are fair and founded on fact.

Every member of the Society will endorse the recommendation for larger membership. The Society is a thoroughly democratic organization and is open to a poor man as much as to the rich. Some men who started life with the liability of unpaid cost of education have risen to positions of usefulness, and some wealthy men have never achieved notoriety. The opportunities for usefulness in the Massachusetts Medical Society are similar to those in any coöperative organization. Whenever a member demonstrates standing as a practitioner and interest in medical problems he is quite sure to be in line for opportunities for work. The other severe indictment of "our alleged spokesmen" is almost cruel and shows that our correspondent is not fully informed of the time and attention devoted to legislative matters by the President and members of several committees. With-

out going back into ancient history, it should be stated that Dr. S. B. Woodward gave the major portion of his time when in office to most strenuous work before the committees of the legislature and in conferences with people of influence, trying all the time to bring about understanding of public health problems and the dangers to medical practice.

In like manner, Dr. Alfred Worcester abandoned a large part of his private practice to serve on a commission and on committees and drew upon his vital reserve to a painful degree, and now our present President is going about the state discussing all matters of interest and conferring with members on the subjects calling for attention. The work done by officers of the Society does not always accomplish all that is to be desired and the disappointment sometimes seems to be because the unofficial members do not take active interest in important questions.

By all means have all interested members organized. That suggestion is valuable, but may we not accomplish more by coöperation than by criticism? After the members have organized and have agreed on plans would it not be well to tender to the committees offers of organized assistance?—EDITOR.]

NOTICES.

THE SPRINGFIELD ACADEMY OF MEDICINE.—On the evening of March 7, 1922, at the Central High School Hall a public meeting, under the auspices of the Academy, will be held for the purpose of emphasizing to the laity the sound, scientific basis on which the practice of medicine rests. The speaker will be Dr. Ernest LaPlace, Professor of Clinical Surgery at the University of Pennsylvania, and a graduate of the University of Paris. He has chosen for the subject of his address, "Louis Pasteur," whose pupil he was for many years.

Members are urged to report interesting cases more frequently.

The Academy wishes to enlarge its membership. Will members please see that every eligible physician receives and signs an application blank?

The January meeting of the Springfield Academy of Medicine was held Tuesday, January 10, with Dr. Hugh Auchincloss of New York City as speaker. Dr. Auchincloss read a paper entitled "Surgery of the Hand." Luncheon was served after the meeting.

ALLEN G. RICE, *Secretary*.

HARVARD MEDICAL SCHOOL RESEARCH CLUB.—At the meeting of the Research Club to be held at the Harvard Medical School on Friday, January 20, at 12.30 o'clock, in the Amphitheatre of Building A., Dr. Alexander McAdie will talk on "Humidity."

THE NEW ENGLAND PEDIATRIC SOCIETY

The seventy-second meeting of the New England Pediatric Society will be held at the Boston Medical Library on Friday, February 10, 1922, at 8:15 P.M.

The following papers will be read:

1. President's Address.

Richard M. Smith, M.D., Boston, Mass.

2. Is there More than One Kind of Rickets?

Edwards A. Park, M.D., New Haven, Conn.

(Discussed by F. R. Ober, M.D., Boston.)

3. The Experimental Feeding of a Vitamin-Deficient Diet, with Especial Reference to Scurvy.

L. W. Smith, M.D., Boston.

Light refreshments will be served after the meeting.

RICHARD M. SMITH, M.D., *President*.
LEWIS WEBB HILL, M.D., *Secretary*.

MASSACHUSETTS GENERAL HOSPITAL.—The third monthly meeting of the Out-Patient Staff of the Massachusetts General Hospital will be held in the lower Out-Patient Amphitheatre at 12 noon, Wednesday, January 25, 1922. Physicians and medical students are cordially invited.

RETURN OF THE TUBERCULOSIS PATIENT TO INDUSTRY.

DR. JOHN B. HAWES, 2d, President of the Boston Tuberculosis Association, has appointed a committee which will study the problem of finding occupations for the men and women who have had tuberculosis. The Association plans to obtain the services of a high-grade woman, whose duty it will be to get in touch with the patients before they are discharged, to find out their physical condition, their capacity for work, their former occupation, to get in touch with their former employer and to try to arrange it so that the man or woman in question can go back to his, or her, work gradually, starting with a few hours a day and working up to a full day's time. An attempt will likewise be made to get the coöperation of the leading manufacturers and employers of labor in this city and secure endorsement of this plan. The American Woolen Company has retained Dr. John B. Hawes, 2d, as consultant in dealing with the tuberculosis problem among the employees of that company.

APPOINTMENTS.

DR. ROBERT N. NYE, formerly research assistant to Dr. F. B. Mallory, has accepted the position of Assistant Director of the Division of Biologic Laboratories of the Massachusetts State Department of Public Health.

DR. W. W. KEEN, of Philadelphia, has been elected a foreign associate of the French Academy of Medicine.

RESIGNATIONS.

DR. HAROLD C. ERNST, Professor of Bacteriology in The Harvard Medical School, has resigned his position, to take effect at the end of this academic year.

Dr. Ernst was appointed as Demonstrator of Bacteriology in 1885, Assistant Professor in 1891, and has been Professor since 1895.

Aside from his work and influence in this school, he has always devoted much time to the problems of medical education, and has represented the Massachusetts Medical Society in important conferences.

DR. WILLIAM T. COUNCILMAN, Professor of Pathology in The Harvard Medical School since 1892, has resigned. His resignation will also become effective at the end of this academic year.

Dr. Councilman came to Harvard from The Johns Hopkins School and brought the prestige acquired through association with Professor Welch and the high standing of this institution.

BOOKS FOR REVIEW.

THE JOURNAL acknowledges the receipt of the following books for review:—

Pediatrics—Orthopedic Surgery. Practical Medicine Series. 1921, Vol. IV. By Abt and Ryerson. Published by the Year Book Publishers, Chicago, Ill. 306 Pages. Price \$1.75.

The Sphygmometer. By William Russell. Published by Messrs. William Wood & Co., New York, N. Y. 145 Pages.

The Psycho-Analytic Study of the Family. By J. C. Flügel. Published by George Allen & Unwin, Ltd., London. 259 Pages. Price 10/6.

Attention is called to a special notice on advertising, page viii, in regard to lectures furnished by the Boston Tuberculosis Association.

The Boston Medical and Surgical Journal

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The New England Surgical Society

THE TREATMENT OF CARCINOMA OF THE PROSTATE

BY JOHN H. CUNNINGHAM, M.D., BOSTON.

THE object of this communication is to touch briefly upon the clinical course of carcinoma originating in the prostate; to refer to certain features in connection with the diagnosis and what may be done to relieve the condition.

The disease is probably more common than supposed, and the statistics of recent years show that somewhat more than 20 per cent. of prostatic obstructions are due to this cause.

In 1908 Dr. F. S. Watson and myself (Watson & Cunningham) published the operative results by all methods in carcinoma of the prostate up to that time, and there was but one patient who had lived more than four years. The average length of life in the Mayo series recently recorded by Bumpus (*Surg., Gyn. and Obstet.*, Jan., 1921) was $3\frac{1}{2}$ years from the date of the first symptoms. Certainly not a brilliant record!

Since radium therapy has been added to the treatment of carcinoma in general it has, in the hands of a few, been extensively employed in connection with the treatment of carcinoma of the prostate, which has improved the situation somewhat.

Carcinoma of the prostate possesses the same general problem as carcinoma elsewhere, together with certain special features dependent upon its location; producing symptoms of prostatic obstruction.

Considering the subject purely from the clinical aspect, there are two important features, differing entirely from one another, which have a most important bearing upon the symptomatology and course of the disease. The one, metastases, is in most respects the same with carcinoma of the prostate as with carcinoma elsewhere, differing only in certain features because of their location deep in the pelvis and abdomen where they may develop and not be evident until well advanced. The other feature is the development of the growth in the prostate, producing prostatic obstruction with a resulting residual urine and back pressure in the kidneys, with or without urinary infection; or in other words, the same sequence of events as occurs with benign prostatic obstruction.

The most unfortunate feature in connection with carcinoma of the prostate is the fact that the primary focus in the gland may develop so slowly as not to cause symptoms of prostatic obstruction before widespread metastases occur. In fact, the majority of patients seeking medical aid for the symptoms of prostatism due to carcinoma of the prostate generally show well-established metastases at that time, which make the surgical problem, in most instances, a purely palliative measure.

There is also a group of patients with carcinoma of the prostate who, for the same reason of slow development of the primary focus, are relatively free from any symptoms of prostatism, but because of symptoms dependent upon the metastases naturally seek relief in other branches of medicine than urology. Metastases from a focus of carcinoma in the prostate not infrequently occur in the bones, particularly in the spine, producing cord symptoms and neuralgic and rheumatic pains dependent upon nerve pressure in various parts of the body, and particularly from pressure within the pelvis, producing symptoms of sciatica, are most common, and carcinoma of the prostate, as an explanation of such symptoms in adult males, should always be considered even in the absence of any symptoms of prostatic obstruction.

The difficulty in dealing successfully with carcinoma of the prostate surgically is, therefore, dependent chiefly upon the fact of the relatively slow development of the local focus and the relatively rapid dissemination of metastases, so that by the time the patient develops the symptoms of prostatic obstruction a widespread metastasis has already taken place. This remarkable disproportion between the secondary manifestations of the condition and the primary focus leads to only a late recognition of the disease in most instances.

The benefits to be derived from surgery in carcinoma of the prostate are, briefly speaking, the relief of prostatic obstruction whereby the bladder is permitted to empty itself of its residual urine and the kidneys thus relieved of back pressure. Without this relief death is hastened by renal impairment, and it is my belief that more patients with unrelieved carcinoma of the prostate die from uremia than from the disease *per se*, and it is the symptoms dependent upon the condition in the urinary tract that contribute largely to the individual's suffering.

From the diagnostic standpoint there are certain subjective symptoms and objective findings which, in many instances, may differentiate carcinoma of the prostate from benign hypertrophy. Without entering upon a discussion of the pathology of the disease an explanation of the subjective symptoms is to be found in the fact that the primary focus in the prostate produces early metastases in the pelvic nodes, resulting in sciatic nerve pressure and giving the usual symptoms of sciatica. This disturbance is a common one, and, in fact, not infrequently the most pronounced symptoms regarding which the patient complains. With such pain radiating to one or both sciatic regions, there is often an associated sacral and groin pain, all of which subjective symptoms should excite suspicion of malignant disease of the prostate, with pelvic metastases.

Bumpus (*ibid.*), recording the statistical data at the Mayo Clinic, notes that the first symp-

toms in seventy-nine patients with clinically demonstrable metastases was pain in 34%, while in 283 patients without clinically demonstrable metastases pain was the first symptom in but 12.01%; which strongly suggests that when pain of the character already referred to is a prominent symptom, pronounced metastases have, in all likelihood, already occurred.

Objectively, the sense of marked induration, loss of resiliency and irregular hard areas within the gland, as noted by rectal palpation, and especially if the induration extends upward onto the posterior surface of the bladder toward the seminal vesicles, in a prostate little or much enlarged, is characteristic of carcinoma of the gland, and is in contrast to the smooth, resilient, more or less rounded topography of benign hypertrophy. The only condition of the prostate with which carcinoma in the gland can be confused, is the small fibrous prostate or when there exists localized areas of greater density due to chronic inflammation, and in most instances the train of subjective symptoms already alluded to are wanting.

In the preoperative examination as well as in the histology, there are two types of carcinoma of the prostate. One, the most common, is the gland enlarged in varying degree with irregularities of almost stony hardness in the early stages of the disease, or after the whole gland has become more or less involved in the infiltration, a general enlarged hard mass extending laterally toward the pelvic bones, and upward in the direction of the seminal vesicles, in which direction it has a tendency to spread. This is the type of carcinoma of the prostate which gives the greatest degree of urinary symptoms, because of obstruction. The other type, the most malignant, producing rapid and extensive metastases, shows but relatively little enlargement of the gland by rectal palpation, and the outline is uniform rather than irregular, but there remains the sense of firmness or even hardness. This type of carcinoma of the prostate is rapidly infiltrating in character, having little tendency toward localization. It produces a condition of the gland by rectal palpation which is most likely to be passed unrecognized, not only because of the lesser degree of urinary obstruction, but because it may readily be mistaken for an obstructing gland, providing obstruction exists, of the small, fibrous type or the changes produced by chronic inflammation.

It can be readily appreciated that those particularly alert in appreciating the differentiation referred to between a malignant and benign prostate will have a smaller degree of error in the recognition of the condition before operation: yet there remains a percentage of errors in the experience of the most expert, and those who operate much upon the prostate encounter, during the operation, the difficulty of enucleation or gross changes in the removed

gland, which leads to a suspicion of the true condition. Such suspicion requires an immediate frozen section if possible, and if the gland is carcinomatous or any suspicion exists regarding this point, radium should be implanted in the prostatic region, as will be referred to later. There remains, further, a certain percentage of prostates which are carcinomatous, which will pass at operation as benign, the true condition only being realized by the pathological report. Too much emphasis cannot be placed upon the importance of the pathological examination of all prostates removed for this reason, and because a recognition of the condition calls for the postoperative treatment with radium, if we are to do everything to prevent a local recurrence of the disease.

If, during the preoperative examination, a condition in the gland is discovered which excites suspicion of carcinoma, a complete x-ray examination of the whole skeleton should be made, as bone metastases, both osteoplastic and osteoclastic, are not uncommon. Their presence may be entirely lacking symptomatically, for as Recklinghausen (*F. von. Die fibroese oder deformierende Ostitis, die Osteomalacie und die Osteoplastische Carcinose, in ihren gegenseitigen Beziehungen. Festschr., Virchow, Berlin, 1891, 1-89*), has pointed out, the metastatic process in bone begins in the medullary portion. This evidence of bone metastasis I have found to be not an uncommon accompaniment to the disease, both ante mortem and post mortem, and which condition I will illustrate later by slides. Almost any bone may be involved, as shown by Carlier and Davrinche (*Les metastases osseuses dans le cancer de la prostate. Echo med. du Nord, 1903, VII, 313-322*), the vertebrae, pelvis, ribs and femur being the most common. Bumpus (*ibid.*), recording the Mayo Clinic cases, shows in 135 patients x-rayed: metastases in the pelvis bones, 37.5%; spine, 35.8%; femur, 31.2%, and ribs, 6.9%. While the presence of metastases may not be demonstrated by x-ray in the abdominal nodes and organs, their presence in the lungs is so portrayed not uncommonly, which fact is another argument for a complete roentgenological examination prior to operation; for with a general metastasis without urinary symptoms, the patient may be better treated palliatively, or if operated upon because of urinary obstruction, for the purpose of prognosis and better understanding of the remote symptoms, which may develop.

The local urinary disturbances produced by carcinoma of the prostate are briefly those of benign prostatic obstruction. There is an impression that hematuria is more frequently associated with carcinoma of the prostate than with benign hypertrophy: with which I differ, for in my experience hematuria is far more common with a benign than with a malignant

condition of the gland. The features of urinalysis are common to both conditions, but renal obstruction, with renal dilatation and pyelonephrosis, has occurred in a higher percentage with carcinoma than with benign hypertrophy, an explanation of which is to be found, I believe, dependent upon the pressure of involved pelvic nodes upon the ureter, which condition I have noted post mortem in several instances.

The usual preoperative study, cystoscopy, renal function tests and blood chemistry, determine the renal condition, and should be employed with prostatic obstruction due to carcinoma, as in benign hypertrophy, for by such means information of the patient's condition, both local and general, is obtained. In this connection the phenolsulphonephthalein test should be employed both intravenously and intramuscularly, for by the variation in the result of the test by both methods, important data may be had in estimating, in some measure at least, the patient's general condition, and together with other information of the patient's physical status, determine whether the patient should be treated palliatively or by radical means.

It would be an absolute misstatement of fact to assert any views other than considering carcinoma of the prostate as an inevitably fatal disease, yet it is likewise true that much may be accomplished in relieving the distress due to urinary obstruction both by palliative as well as by radical local treatment. If one contrasts the suffering due to the urinary obstruction with that dependent upon the metastases, there is no question that the individual, freed of his urinary difficulties and ill-being dependent upon renal impairment, lives the remainder of his life in relative comfort, and it is in that respect that any procedure that tends to ameliorate their suffering, even though it offer but little chance of permanent cure, should be employed.

I am convinced from my own, as well as the experience of others, that much may be accomplished along these lines: especially by the combination of surgery with radium therapy by choice, when the individual's condition permits, or by palliative measures by radium alone, or combined with bladder drainage when radical surgery is out of the question.

It is generally admitted that the suffering dependent upon urinary retention and the train of general symptoms dependent upon renal retention and infection, influencing the general condition, must be relieved. Prior to the advent of radium therapy prostatic carcinoma was treated surgically, with two ends in view. One method was palliative and the other an attempt at radical cure. The palliative method consisted of regular catheterization when possible, and permanent suprapubic drainage when necessary. An attempt was made to remove the gland either suprapubically or perineally by enucleation, curetting, or cauterization, to re-

lieve obstruction. The radical method first advocated in 1882 by Leisrink (*Leisrink, Arch. f. Klin. Chir.*, 1882. Berlin, xxviii, 578) was to remove the gland with its sheath and unite the divided ends of the vesical neck with the membranous urethra by suture. A somewhat similar procedure was carried out by Fuller in 1898 (Fuller, *Journal of Cutaneous & G.-U. Diseases*, 1898, p. 581), and in 1904 Young (*Johns Hopkins Bulletin*, Oct. 1905) modified the Leisrink operation to include the seminal vesicles in the operation.

Both the palliative and radical methods relieved bladder retention and lessened, in consequence, the suffering dependent upon it; but the radical attempts did little more, for then, as now, the disease cannot be expected to be recognized prior to the development of metastases, so that any removal of the local growth did not accomplish a cure. It is today generally admitted that the radical operation, as a curative means, is futile because, even with a complete removal of the local disease, the metastasis remains.

During the past five years radium has been quite extensively employed in certain centers of this country in various ways for the treatment of the disease under consideration. As yet no one method has been generally adopted. It is fair only to say that the use of radium by all the methods possesses merit, and favorable local results are obtained when employed independently or together with surgery. After personally observing from time to time the work of others who have concentrated upon this form of treatment, and from a lesser personal experience, I am convinced that it has much value, chiefly in preventing local recurrences if employed before and at the time of operation, and subsequently employed following the operative convalescence. Of this I have no question, and I believe that the day is not far distant when radium will be quite generally a part of the equipment on the instrument table when a prostatectomy is undertaken by those frequently performing the operation: for I feel sure that one doing many prostatectomies will admit that they are occasionally confronted with a carcinomatous gland which they considered to be benign prior to operation, and because the result, so far as local recurrence is concerned, is generally admitted to be better if radium is implanted in the prostatic region following the removal of all the gland tissue that can be removed surgically.

At a recent meeting of the American Association of Genito-Urinary Surgeons (*Trans. Am. Assoc. of G.-U. Surg.*, May, 1921) a symposium on the treatment of carcinoma of the prostate brought out many viewpoints regarding the manner of handling the malady. In general the opinion could be classified into two groups, some contending that surgical procedures dealing with the malignant gland tended

to favor metastases by opening channels for dissemination, and advocated treating the growth by radium alone, producing bladder drainage, if necessary, suprapubically. Others believe in removing as much of the malignant gland as possible, some by the suprapubic and some by the perineal route, with the implantation of radium in the prostate area, and subsequently treating the patient by local radium applications. Favorable local results were recorded by both methods, but neither group presented evidence upon which could be formulated a general basis of treatment for all patients.

Reviewing my own cases prior to the employment of radium in connection with the treatment, it is found that the patient simply given permanent suprapubic drainage, had a less operative mortality and lives slightly longer, on the average, than those from whom the malignant gland was removed. The former group has the inconvenience of a permanent suprapubic tube, and the latter were symptomatically relieved, but often had a local recurrence; and some, for this reason, required subsequently a permanent suprapubic drainage. It is a noteworthy fact, however, that there were a surprising number entirely free from the symptoms of prostatic obstruction by even an incomplete removal of the malignant gland, and were left to die in relative comfort from their metastases, or intercurrent diseases, which are the inevitable result in any event, but without a disturbing local recurrence. Since employing radium prior to and at the time of operation and carrying on subsequent radium treatment following operation, local recurrences have not been a disturbing factor. Moreover, in the treatment by radium of local recurrences in patients who did not have radiation at the time of operation, the radium has, I believe, in many instances taken care of the recurrence so that a permanent suprapubic drainage has been averted. Some of the patients were operated upon by other surgeons and only the recurrences have been observed by me; yet I am convinced that these patients were on the way to a permanent suprapubic drainage, except for the benefits received from the local radium treatment.

Those who have had the greatest experience in connection with radium treatment without surgery are Barringer, at the Memorial Hospital in New York, Young of Baltimore, and the Mayo Clinic. One should not receive the idea that the policy of treatment at these clinics is adverse to operation, for they are not; but they have had an extensive experience in connection with treating the condition by radium without operation. There is a group of patients having obviously a carcinoma of the prostate who have been subjected to treatment without operative interference chiefly for the reason that they either have relatively slight symp-

toms of prostatic obstruction or because metastases are so advanced that operation other than permanent suprapubic drainage would be fatal.

Personally, I have come to classify patients with carcinoma of the prostate into two broad groups. One, in whom an attempt may be made to relieve the prostatic obstruction because of much residual urine, and eradicate the disease locally by removing as much of the gland as possible, even including the seminal vesicles and prostatic sheath in certain instances, and leaving radium in the prostatic area for from 500 to 1000 millicurie hours, according to how much of the growth is left at the time of operation, and subsequently, about three weeks later, giving daily radium treatments through the rectum, urethra, and bladder for a period of about thirty days, giving 100 millicurie hours at each treatment.

The operation, if undertaken, I believe, is preferably done through the perineum, essentially according to the technique of Proust (*Comptes rendus de l'Assoc. Française d'Urologie*, 1901.) The patients falling into this class are those with symptoms dependent upon prostatic obstruction and those whose general condition will permit of such surgical intervention as proven by the usual method of pre-operative study generally employed in prostatic patients.

The other class includes patients with disturbing symptoms of prostatic obstruction and whose general condition is not up to the required standard for the radical operation. They may be subjected, in some instances, to the so-called "Punch" operation, with subsequent radium treatment, or subjected to a suprapubic drainage and treated with radium by introducing needles containing radium into the gland through the suprapubic opening, at the time that it is established, and leaving the radium needles implanted in the gland for from 500 to 1000 millicurie hours, and subsequently treating the malignant gland by radium therapy through the rectum, urethra and bladder, as previously mentioned.

A few months ago I had the opportunity of operating upon a patient who originally had marked prostatic obstruction from a malignant gland, which gland was removed by Dr. Hugh Young in January, 1921, with radium left in the prostatic region, and who received subsequently radium treatment as previously outlined. In June, 1921, he came under my care with a deep urethral stricture and large, foul, residual urine. Through a perineal incision I was able to investigate the prostatic area and remove tissue from this region. There was no gross evidence of carcinoma and the histology of the removed tissue showed it to be fibrous tissue only. I believe that in this instance the local malignant disease had been eradicated.

While this is the only patient that has permitted of an investigation of this sort, there are others who are free from urinary obstruction following the procedure referred to, and by all non-operative methods of investigation are locally free from the disease.

The other class, which is a large group, includes patients with few distressing symptoms of prostatic obstruction and those with recurrence of the disease locally, following operation. This group is subjected to radium treatment alone, or combined with regular catheterization and irrigation, if necessary, to relieve a residual urine or bladder infection.

The radium treatment which I have adopted in this group is a combination of the methods employed by Barringer (*Trans. Amer. Assoc. Gen.-Urin. Surg.*, June, 1921) and by Young (*Jr. Urology*, Vol. 1, No. 6, Dec., 1917).

The Barringer method is the introduction of metal needles containing radium or radium emanations, fixed on a shaft not unlike a small trochar, into the gland through the perineum. For this purpose four 12½ milligram needles may be employed at the same time, placing them in different portions of the gland and also into the seminal vesicles, if desired, guiding their introduction with a finger in the rectum while they are being introduced into the desired areas through the perineum. The needles, having been placed, are left from 300 to 1000 millicurie hours. This procedure requires that the patient remain in bed, there is usually little if any reaction, but urinary retention requiring not more than a few catheterizations has occurred occasionally.

While Barringer is content, through a large experience, to leave these patients, without further radium treatment, for several weeks, when they are again needed, if it seems advisable, I have preferred to supplement the needling by a course of treatment by the method employed by Young, about three weeks after the needling. The treatments consist in making daily applications of radium for 100 millicurie hours by means of a special instrument introduced into the prostatic region through the rectum, urethra, and transvesically; in the ratio of usually three rectal to two urethral to one bladder application, varying the method of application according to circumstances, and never applying the radium to the same area on successive days because the susceptibility of the mucous membrane of these different avenues of application is subject to considerable individual variation, and irritation from the radium may develop if care is not taken in this respect. At the end of this course of treatment the gland, and if advisable the seminal vesicles, are again needled by the Barringer method, and the course of treatment for the time being is ended.

These patients should be examined in about a month, and according to the changes in the

condition depends the decision as to further treatment. During this interval catheterization and bladder lavage may be carried out if necessary.

The results have proven conclusively, to my mind at least, that radium employed by the Barringer or Young method has a striking beneficial result, as I have reason to know from observing their work from time to time prior to employing it myself. My decision to combine the two methods was not from failure on their part, but rather to employ every means of attacking the disease. Recently Young has adopted the needling method to supplement his form of treatment for the same reason, applying the needles, as a rule, at the end of the course of rectal, urethral, and bladder applications.

The course of treatment as outlined is essentially that employed at the Mayo Clinic also, and in a recent personal investigation of their results, I find that they classify them briefly into (1) those relieved of all symptoms, (2) the growth shrinks, but some urinary obstruction remains, (3) in some there is no change, and (4) that there are some remarkable results and apparently local cures. In a recent personal investigation of the results of Young's Clinic at the Brady Urological Institute, I find that they classify their results as follows: (1) actual beneficial results, which means diminution in size and softening of the carcinomatous gland with relief of retention in most instances; (2) symptomatically improved, meaning diminution in frequency of urination in about 60 per cent., relief of local pain in over 70 per cent., the cessation of bleeding in all cases where it was a factor; and about five per cent. of patients have gone over four years without return of local symptoms, and are apparently local cures.

My own experience, by no means so extensive, substantiates in substance these results, with some reservations. There have been several patients with local recurrence following operation who, without employing radium at the time of operation, have, through treatment by radium as outlined, shown such improvement in the size of the growth and obstructive symptoms, that, in my opinion, they have been relieved of the necessity of producing a permanent suprapubic drainage. It should be mentioned that the relief of symptoms and diminution in the size of the gland must not be expected to take place during the course of radium treatment, and several weeks must pass before favorable results can be expected; and even then all that may be desired and hoped for may not take place, with the result that another course of treatment may have to be instituted. There have been some patients in whom the gland has softened and diminished much in size, yet some retention remains and all symptoms have not disappeared.

On the whole, however, the patients are symptomatically and locally improved, and there are some with apparently local cures.

The mental attitude of the patient with carcinoma is a feature familiar to us all, and one has been much impressed with the new hope, false perhaps, that has come through the unqualified popular expressions as to the wonders of radium, which, after all, is no small individual matter when one has been led to believe that nothing further can be done after the operation has failed. It is fortunate that we are in possession of such data as to be able to give such patients some hope founded on fact.

On the other hand, the history of the subject shows conclusively that carcinoma of the prostate is an inevitably fatal disease occurring from three general causes: local urinary obstruction with renal impairment and infection; metastases; and inviting intercurrent diseases from lowered general resistance. When all is said and done, all we can accomplish in this disease is to relieve the local condition either by operation, combined with radium therapy in certain instances, or by radium therapy alone, which, however, is no small accomplishment when such procedure tends to ameliorate suffering even though it offers a very small chance of permanent cure.

DISCUSSION OF DR. CUNNINGHAM'S PAPER ON CANCER OF THE PROSTATE.

DR. QUINBY: I am sure the Society is deeply indebted to Dr. Cunningham for his excellent résumé of a subject which is still *sub judice* in a great many respects.

Two or three points stand out as important. In the first place, I wish to emphasize the great frequency of cancer of the prostate. My own experience has been somewhat as follows: while in Baltimore with Dr. Young, analysis showed that 20% of the cases with prostate obstruction coming to his clinic proved to be malignant. Although this was the incidence of cancer of the prostate in that clinic, it seemed, because it was a special clinic and because of Dr. Young's reputation, that these figures were probably too high, and did not represent a fair cross section of the condition throughout the country. In the beginning of my experience at the Brigham Hospital my figures were only about half as large. In other words, only one case out of ten proved to be malignant. But later on I have found the percentage to increase, so that now we find that 15—18% of the cases of prostate obstruction are malignant.

I only mentioned these facts to call to your attention the extreme importance of any method which will palliate the deplorable symptoms of a disease so frequent. With regard to what methods are to be used in palliation, I cannot add anything to the very excellent summary which Dr. Cunningham has given you. I think with him that, in spite of the very attractive lantern slides which he has shown, attempts to remove the prostate by radical operation are not justified. I feel that the only time when a prostate carcinoma can be radically removed is when one finds, in the course of an operation for benign growth, so small an area of carcinoma as to be demonstrated only by the pathologist. We have in our clinic two or three patients

apparently entirely cured, in whom the diagnosis of carcinoma of the prostate was undoubted, but in whom we found such a small area of cancer that it could be shown only by the microscope. These are the only cases that can be surely cured, I believe. The others, because of their distressing symptoms, must be treated by palliation, and one of the most prominent and successful methods today is by radium, as Dr. Cunningham has outlined.

DR. F. R. HAGNER, Washington, D. C.:—*Mr. President and Gentlemen*—It is certainly a great pleasure to be present at the meeting of the New England Surgical Society. I have enjoyed Dr. Cunningham's timely paper. There isn't much I can add to it as he has gone into the subject very thoroughly and has given a fair presentation of it. He did not touch especially on the early diagnosis as most of the patients we see with cancer of the prostate are late cases and we should see the early type of the disease. The following symptom occurring in men between 45 and 55 years of age should arouse suspicion of malignancy—namely urinating frequently without obstruction, and a most careful examination of the patient presenting this symptom should be made.

As regards metastases in these cases—it is only twelve years ago that Dr. George Bloomer read his paper in Washington and reported forty-five cases of bone carcinoma following carcinoma of the prostate, so that this work has practically all been done in the last four or five years, and there are now hundreds of such cases on record.

We have all seen cases with carcinoma of the prostate live two, three, four and five years in comparative comfort before we had radium. But I am sure that radium prolongs life and surely adds much to the comfort of one suffering from this distressing disease. There are two types which he spoke of—the large adenomatous type of the disease and the small fibrous type. It is interesting to note that statistics prove that the small prostate is the one that has the more frequent bone metastases. That may possibly be due to the smaller prostate being present for a longer time without symptoms.

I have had experience with radium for about six or seven years. Three and a half years with my own and the rest of the time the cases were treated by Dr. Kelley of Baltimore. My experience has been a little different from Dr. Cunningham's. I have not seen a single case where the growth in the prostate has been entirely eradicated by radium. Many of the tumors become smaller in size, less hard and indurated. The subjective symptoms are, in many cases, most wonderfully relieved. As to the relief of the obstruction, radium has not relieved this symptom but most happy results have followed the surgical removal of the obstruction followed by the use of radium.

I feel that it is most important that in every prostate removed, sections should be taken, not in one place but in different parts of the gland, as it not infrequently happens that a supposed non-malignant prostate proves on pathological examination to be carcinomatous. As Dr. Quinby said, the cases in which we get good results are the very early cases in which we are only able to make a diagnosis by sections of the gland; in this type there is a small nodule which is carcinomatous and we fortunately remove it at an early stage.

I feel it comes down to this: That carcinoma of the prostate is one of the most difficult forms of carcinoma we have to deal with, and anything we can do to enhance the comfort of these patients, or that serves to prolong their lives, should be readily used by everyone treating this disease.

DR. ARTHUR L. CHUTE, Boston: There are a few remarks I would like to make concerning Dr. Cun-

ningham's paper. I will admit that the outlook in cancer of the prostate is discouraging but I think it is not as dark as the gentleman would indicate. It seems to me that surgery can do a good deal for these people, mostly in the way of palliation, I will admit, but now and then we get a clinical cure. Dr. Hagner spoke of the fact that the malignant cases which remained well after operation were the cases that we came upon accidentally. This is not always the case. I have a patient that I operated on ten years ago. Dr. Arthur Cabot agreed that clinically it was carcinoma. I did a perineal prostatectomy, taking out all the gland tissue I could; this tissue was macroscopically and microscopically carcinoma; the man was without any evidence of disease last winter, ten years after operation. I have another similar case operated on at about the same time. I have not seen him but he was reported as well by a friend, within a few months. Radium was not used in either case.

Dr. Cunningham spoke of Dr. Barringer's ways of using radium before operation in carcinoma of the prostate by inserting needles through the perineum and applying the radium through the urethra by means of applicators. I doubt the wisdom of using radium before operation for several reasons: first, many of these people with cancer of the prostate come to us with a retention of greater or lesser amount and the immediate operative removal of as much of the obstructing malignant prostate as we can get, relieves this element. It is my belief that the pyelo-nephritis secondary to retention plays a very important part in the course that these cases run both as regards the length of life and their comfort. Furthermore, it seems to me perfectly self-evident that as radium exerts its action only a relatively small distance, the removal of the bulk of the malignant tissue by operation, and the inserting of the radium in the sides of the operative cavity, allows more action to be exerted on the peripheral part of the mass, the impossible part to remove by operation. There is another reason for operation first and the use of radium later, that is, the devitalizing action that radium seems to exert on the surroundings intravesically and intrarectally, before he was subjected to perineal operation. He had no residual at the time I saw him before he began his radium treatment; at the end of his course of radium he had a sufficient residual to make a perineal operation seem necessary to his surgeon. This was done and the man, who is now practically dying, returned with a recto-urethro-perineal fistula which it has been impossible to close. I believe this was due, not to a poor operative technique, but to the fact that the use of radium had robbed the tissues of their ability to heal rapidly. This devitalizing action is somewhat slow in taking place, estimated to be at its height about six weeks after the use of radium. Now if one applies radium following the perineal operation the operative healing has taken place before this devitalizing action is evident. It is my belief that we must persist in our efforts to help these patients, that while as yet we do not accomplish much in the way of "cure" we do accomplish a good deal in the way of amelioration.

SOME FIGURES ON CAESAREAN SECTION.

By JOHN M. BIRNIE, M.D., SPRINGFIELD, MASS.

In the *Journal of the American Medical Association* for February 24, 1917, a writer on Caesarean Section gives the mortality as over 50% in several good-sized cities near Boston,

and says that he has no doubt that similar figures obtain in other parts of the country. He further says, "I believe that if we could only collect the statistics from the private hospitals of our larger cities we should be compelled to admit that there is a surprisingly high maternal mortality attendant on this operation."

Being somewhat interested in the subject of Caesarean Section, and not believing that the mortality in Springfield was "surprisingly high," I endeavored to ascertain what the actual statistics of the operation were in our community and what the pregnant women might expect from the procedure in the hands of the local operators.

The writer before mentioned, states that he has no actual figures upon which to base his assertions; and I, also, have been unable to find figures covering any geographical unit. Most of the published figures are drawn from the clinic of one man, or from the records of hospitals dealing exclusively with maternity cases. Some of the writers make even a further classification by separating their private cases from those done on hospital service.

In the present paper I have taken a period of years extending from January 1, 1909, to January 1, 1921. The year 1909 was taken as a starting point because it marked the opening of a hospital given over exclusively to obstetrical work. During the period of 12½ years there have been in operation five hospitals in which Caesarean Sections have been performed. I have made very careful inquiry and have not been able to learn of any case done outside of a hospital; therefore these figures must very nearly represent every Caesarean Section done in Springfield during the given period.

Four of the hospitals mentioned are open institutions in which any doctor of good standing may operate, and the fifth hospital was open during a part of our period. The operations were done by twenty-nine different men representing varied degrees of surgical training and experience, and including some so-called "occasional operators." Many of the histories of the cases, particularly in the first years of the period, are very meager and are wanting in certain important data so that accurate deductions cannot be made along lines which would be very interesting.

In the twelve and one-half years, 217 Caesarean Sections were performed in the five hospitals. Two of these were done by surgeons from a distance, so have been excluded from our figures, leaving a series of 215 cases. During this same period there have been, in Springfield, 39,069 deliveries, making an incident of Caesarean Section of one in one hundred and eighty cases. In 20,000 cases at the Sloan Maternity the incident was one in one hundred and thirty-three.

The maternal mortality in our series of 215

cases was 11 per cent., which on first thought might seem rather high, and yet it compares favorably with Davis' figures from the New York Lying-In Hospital, which give a maternal mortality of 10.7/10 per cent. in a series of 571 cases. In our series the cases were not selected, and in fact many of them were contra-indicated if one holds strictly to the idea that Caesarean Section should not be performed on a woman who has had frequent vaginal examinations or attempts at delivery. I am not defending some of the procedures shown in these figures, only stating the facts, but one must remember that we often operate under very unfavorable circumstances and in the presence of conditions not of our own choosing. It is extremely easy to lay down hard and fast rules of operative procedure, and still more easy to criticise the work of others, but in making such criticism one is often entirely ignorant of the conditions and circumstances under which the surgeon was forced to make his decision. In this series of cases the maternal mortality varies widely in the different hospitals. In one hospital there were 39 sections, and in another 41, which gives a good basis for comparison. The maternal mortality in the first hospital was 20.5/10%, and in the second hospital 4.8/10%. The foetal mortality in the first was 20.5/10%, and in the second 17%. The mortality in the other hospitals varied between these two extremes. Later in the paper it will also be seen that one might question the indications for operation in many of these cases, as it is perfectly evident that the section was done merely as a means of emptying the uterus. Furthermore, over one-quarter of the operations were done for toxemia, an indication strongly questioned by many operators. Of our 215 cases the charts from one hospital were not available, so that 15 cases are dropped from our series in further analyzing our figures. In the 200 cases remaining the maternal mortality remained at 11%, and the foetal mortality was 20.5/10%.

In the 200 cases, Caesarean Section was performed for the following conditions:

Contracted or deformed pelvis	64
Toxemia	53
Placenta previa	39
Uterine inertia	22
Breech presentation	4
Cervical scar tissue	4
Previous Caesarean	4
Aged primipara	3
Transverse presentation	2
Bicornate uterus	2
Face presentation	1
Brow presentation	1
Hydrocephalus	1

The charts in our series are so incomplete that it is impossible to work out the cause of death, but the following figures will give the deaths according to the indications for which section was performed.

MATERNAL	
Toxemia	13
Contracted or deformed pelvis	3
Inertia	4
Bicornate uterus	1
Aged primipara	1
FOETAL	
Toxemia	14
Placenta previa	10
Contracted or deformed pelvis	9
Inertia	3
Cervical scar tissue	2
Previous Caesarean	1
Bicornate uterus	1
Hydrocephalus	1

In analyzing our figures on the toxemias of pregnancy, I am somewhat at a loss as to procedure. Most of the textbooks devote at least a chapter to the toxemias without giving a definite classification, and stating that they may, if severe enough, lead to eclamptic convulsions. Eclampsia is given a chapter by itself, and in order to be classified as such, convulsions must be present. I am not able to determine where the toxemia ends and the eclampsia begins, unless it is with the first convulsion. Given two women with exactly the same symptoms, one will have convulsions and one will not. Are we dealing with two different diseases? In our series I have classified as toxemias all the cases having marked albuminuria, gastric disturbances, headache, etc., of severe enough nature to warrant a diagnosis of threatened eclampsia, as well as the cases in which convulsions were present. The question which arises in my mind is whether or not I am justified in comparing our figures with those published regarding eclampsia. Many writers discuss eclampsia but do not state whether or not convulsions were present.

In our series there were 53 cases of severe toxemia with a maternal mortality of 24.5/10%, and a foetal mortality of 21.8/10%. The largest number of deaths, both for mother and child, occurred in this class; over one-half of the maternal mortality having occurred in the toxic cases. If we could exclude them from our series the maternal mortality would drop to 6.1/10%. I know that many operators do not consider eclampsia as an indication for Caesarean Section unless possibly under a very few exceptional conditions.

If I may be allowed to consider our toxemias as eclamptic cases the mortality, although high, does not compare too unfavorably with other methods of delivery. De Lee gives the maternal mortality in eclampsia as from 20 to 45%, and the foetal from 30 to 60%.

Davis, in analyzing 571 cases from the New York Lying-In Hospital, gives a maternal mortality in eclampsia of 37% and a foetal of 30%, while Cragin in 20,000 cases from the Sloan Maternity, gives the maternal mortality in eclampsia as 28.3/10%, and the foetal as 60.1/10%. In the Sloan Maternity the delivery was accomplished by dilatation with the

elastic bag, followed by delivery. Neither of these writers state whether or not convulsions were present in their cases.

In discussing placenta previa I am again at a disadvantage, for it is impossible to tell from the histories in our series whether we are dealing, in a particular case, with central or marginal placenta previa. Furthermore, it is possible that in some of our so-called previa cases we were dealing with placental separation rather than faulty attachment. I have of necessity grouped all these cases under the heading "Placenta Previa." In this group there were 39 cases treated without the loss of a single mother, and with a foetal mortality of 25.6/10%. This is by far a better showing than is found in any statistics that have come to my notice.

I have not discussed the indications for Caesarean Section, but there are three classes of cases in our series concerning which there is much to be said both for and against section. I refer to cases of breech presentation, eclampsia, and placenta previa. I have some convictions concerning them, but on some points I confess that I am still very uncertain. Perhaps the discussion may help to clarify matters somewhat. I have not mentioned the time-honored debate over the point as to whether the section should be performed by the obstetrician or the surgeon. In our community there is no debate, as there is no one practising obstetrics exclusively. The cases are handled by general practitioners. This is not a criticism, for many of these men are clever obstetricians with a wide experience. Few, if any of them, attempt Caesarean Section, and it is to the surgeon that these cases fall. Believing that a similar condition of affairs exists in many of our New England towns and cities, leads me to present an obstetrical subject before a surgical meeting. With us, Caesarean Section is a surgical problem, and as such I present to you these incomplete figures which, to me, show not a "surprisingly high mortality," but an astonishingly low one.

DISCUSSION OF DR. BIRNIE'S PAPER ON CAESAREAN SECTION.

DR. WALTER G. PHIPPEN, Salem: I inferred from the synopsis of the paper that comparative statistics would be acceptable, so I looked up the statistics of the Salem Hospital for the last ten years and have found that there have been seventy-seven cases of caesarean section, with six deaths—a mortality of about seven per cent. I had no time to look up the indications for operation except in the case of the deaths. Three of the six deaths were in cases where the indication for operation was placenta praevia, two for eclampsia. Only one death occurred where the operation was done for contracted pelvis. The woman had been subjected to excessive labor before entering the hospital and died of general peritonitis.

Sixteen cases have been operated on by me, with

one death. This was a primipara with placenta praevia, undilated, with excessive hemorrhage.

These figures seem to show that in a small community at least the risk of operation is greater by far in placenta praevia and in eclampsia; but of course both of these conditions might have led to the deaths anyway.

I think these figures, however, do not represent all the cases of caesarean section done in Salem in the ten years, for in the first half of the period, before we had adequate private ward accommodations, many were done at home. This series of cases was operated upon by six or seven different surgeons, using approximately the same technique.

DR. SAMUEL W. GODDARD, Brockton: Not being a real obstetrician, I hesitate to discuss this paper, but I am interested in it from the point of view from which it has been presented. I have had occasion to do a few caesarean operations in connection with our private clinic in Brockton for a period of thirteen years during which I have been connected with the Goddard Hospital; and in that time there have been 2,362 obstetric cases, of which 59 were for caesarean section, making a total of 2.4 per cent. of the hospital cases which have had caesarean section. That figure I think is somewhat misleading because we don't know what percentage is sent in from the outside by men who send difficult cases only and not normal cases. Of that series there were two maternal deaths, and the mortality for the babies was nil. Of these, twenty-three were for contracted pelvis, twelve for disproportion, thirteen for repeated caesarean, four for primiparous breach, two for pelvic tumor, two for placenta praevia one for eclampsia, one for transverse presentation with contraction, and one for decompensated heart.

The death in the first one was from hemorrhage and in the other from eclampsia with peritonitis. The series of cases comprising those I have tabulated under contracted pelvis require explanation. Those cases showed by pelvimetry a definite contraction, but I think it is fair to say that many of them should be included in the cases of disproportion.

There is just one point I would like to call attention to, and that is that I feel that more of these borderline cases should be subjected to a test of labor. I don't think that the size of the head or the size of the pelvis or both should necessarily be the deciding factor. I think there are many contingencies and coincidences in labor which we don't know a whole lot about or at least we fail to recognize, and many of these cases will not be subjected to caesarean if we recognize the fact; and I believe it will not materially increase the risk if later on caesarean should be decided upon. Our cases have been done, eight by my associate, Dr. Leavitt, and the rest by myself, and it is fair to say that most of the obstetric cases in our clinic are delivered by specialists, and where a case comes up for possible caesarean, we have a general consultation which I think is helpful.

DR. SELDOM B. OVERLOCK, Pomfret, Conn.: I am connected with one of the smaller hospitals and the conditions in regard to obstetrics are similar to those described in Dr. Birnie's paper. No one who limits his practice to obstetrics is connected with the staff though most of the men have had a fairly wide obstetrical experience. The decision as to whether or not a caesarean section is demanded is made in great part by the man who is in attendance on a given case. Following such decision, I have operated unless the case appeared to be an absolutely hopeless one. The hospital records show that in five years, 1916 to 1921, caesarean section has been done twenty-two times on nineteen different women. Four women have had the operation twice. On three of these I have operated both times and one

had the first operation elsewhere. The operation was performed eighteen times for some contraction of the pelvis, two for toxæmia, one for placenta praevia, and one for fibroid tumor obstructing the birth canal. There was no maternal mortality. Three of the infants died. One infant was a "blue baby," in one, premature birth was given as cause of death, the third was a strong and healthy child at birth and continued in good health until late in the second week, when it developed acute exfoliative dermatitis of infants and died on the seventeenth day after birth. Intra-abdominal conditions found at second operation were of interest. In two, nothing abnormal was found. Of the remaining two, one had a very thin band extending from the lower extremity of the uterine incision to the abdominal peritoneum, the other had a loop of small intestine attached to the uterus. This attachment had diminished the lumen of the gut and, no doubt, would have caused serious trouble had the loop become twisted in any way. One mother had a postoperative pneumonia and one had a postoperative hernia.

DR. JOHN M. BIRNIE, Springfield: I wish to compliment the speakers on their low mortality. I wish you to realize that these cases, to use a slang expression, were done by Tom, Dick and Harry.

One thing in regard to the postoperative findings at the second operation—that is an interesting problem. Obstetricians in Boston are unanimous in saying "once a caesarean, always a caesarean." I think that is a disputed point and one on which we cannot make a final decision as yet. I have been interested in looking into the abdomen and I have seen only one in which I could find a scar in the uterus. In quite a number of cases you can find no scar in the uterus, and in a large number there are no adhesions. I have not decided once a caesarean, always a caesarean.

Original Articles.

JEJUNOSTOMY.

BY IRVING J. WALKER, M.D., BOSTON.

ALTHOUGH jejunostomy has been considerably exploited as a surgical measure, its use seems not to have been generally adopted. Perhaps one reason for its lack of popularity is because, in most instances, it is an operation performed to save life after some primary operation which has resulted in serious complications. Again, when the latter have been so long in duration that the patient is *in extremis*, recovery could hardly be expected to result from any operation. The chief object of this paper, therefore, is a plea for early use of jejunostomy as a surgical measure.

The following are some of the indications for this operation:

1. Carcinoma of the Esophagus.

For this condition jejunostomy is certainly a better operation than gastrostomy, because of the fact that there is less pain after the former than after the latter operation. The operation of choice is the Witzel-Mayo method, as the control of the intestinal contents is far more satisfactory for permanent use than after any other procedure.

II. *Ulcer of the Cardiac End of the Stomach where Removal is Impossible.*

Occasionally, as in the case cited below, one wishes to rest the ulcer by withholding food by mouth as much as possible, and at the same time desires to give nourishment in order to build up the patient. This can be accomplished and the ulcer even healed, by feeding through a jejunostomy opening.

CASE. Male, aged 34 years. The history was very suggestive of chronic gastric ulcer. Bismuth series confirmed this diagnosis and localized the ulcer on the lesser curvature, near the cardiac end of the stomach. It was deemed best to do an exploratory operation, hoping that there might be some possibility of excising the ulcer. At operation, this was found to be inadvisable because of its high location. A jejunostomy was done by the Witzel-Mayo method. Patient was not allowed to swallow food, or even water, for eighteen days, the nourishment and liquids being given through a jejunostomy opening. He was allowed to rinse his mouth from time to time, being cautioned not to swallow. The patient felt perfectly satisfied, and at no time complained of hunger. On the eighteenth day, feeding was started by mouth and gradually increased until at the end of four and one-half weeks he was taking a fairly liberal diet. The jejunostomy opening closed about this time, and patient left the hospital. When seen three and one-half years later, the patient stated that there had been no return of his gastric symptoms. Apparently the ulcer had been cured by rest of the stomach.

III. *Obstruction of the Pyloric End of the Stomach, Due to Cancer or Ulcer.*

Occasionally one meets with such a case, where even gastroenterostomy becomes a hazardous procedure, because of the poor condition of the patient, resulting from starvation. Here jejunostomy, under novocain, can be easily done, the patient at once started on feeding, and his general condition thus improved up to the point where there is less risk in the performance of a more formidable operation.

IV. *Bleeding Ulcer of Stomach or Duodenum.*

Here feeding is always a problem, the aim being to rest the ulcer-bearing area as much as possible and at the same time nourish the patient. The internist meets with such cases. He could at least be spared the problem of feeding by utilizing jejunostomy until such time as feeding by mouth becomes advisable.

V. *Nausea and Vomiting of Pregnancy.*

Such a condition becomes most serious at times. Unquestionably, the best technique is to empty the uterus. However, some such cases are allowed to go to the point where the operation is fatal, because the patient is at a low ebb

from starvation. It was for this reason that the gynecologist feared to empty the uterus in the case stated below:

CASE. Female, aged 24 years. First pregnancy, about four weeks in duration. Had been nauseated from the first week. Nausea and vomiting have increased in severity. Has not been able to hold even water for ten days. Went to bed one week ago because she was too weak to sit up. Has been fed by rectum and given various medicines to quiet the vomiting, but without avail. One week ago the uterus was raised by packing the vagina. There was no relief from the vomiting. Pulse, 128, poor quality; temperature, 97.6. Very pale and anemic in color. Jejunostomy under local anesthesia. Intestine sutured to parietal peritoneum, self-retaining catheter placed through the opening in jejunum, and double purse-string sutures through intestine so that it encircled the catheter. Patient at once given two ounces of peptonized milk and one ounce of water through the catheter. This was repeated every hour for the next four days. Patient was allowed to swallow nothing. For the first twelve hours the vomiting and nausea continued as before the operation, and then gradually subsided, entirely ceasing at the end of four days. At this time liquids in small amounts were given by mouth. Gradually, feeding through the jejunum was lessened, until at the end of one week all nourishment was being taken by mouth. Catheter was then removed. At this time the patient's general condition was excellent. On the tenth day, the uterus was dilated and emptied of the fetal contents. A normal convalescence followed. The jejunostomy opening stopped draining on the nineteenth day. The bowels at first were moved by enemata, but after the third day, and until the catheter was removed, a solution of Epsom salts, given through the catheter, served well as a cathartic.

Following jejunostomy, there is a possibility that this pregnancy might have gone to term and patient have been delivered of a living child. However, it was decided not to risk a recurrence of the nausea and vomiting, so the pregnancy was terminated. In the future, it might be well, where jejunostomy has relieved the nausea and vomiting in pregnancy, to allow such a case to progress in pregnancy to full term, or until recurrence of the symptoms develop.

VI. *Persistent Vomiting with Localized Peritonitis.*

CASE. Female, aged 48 years. Cholecystostomy four years previously. At the present operation the gall-bladder was removed, but with some difficulty because of adhesions. There was considerable bleeding, necessitating drainage. Patient did fairly well for three days and then started to vomit. There was no elevation of temperature or pulse at first. The stomach was washed out repeatedly and salt

solution given intravenously several times. Vomiting increased. No marked distention except high in the abdomen. Gas fairly well expelled with enemata. Because of the fact that the patient could not retain nourishment or fluids, it was deemed best, on the tenth day, to do a jejunostomy. This was done under novocain. The original wound was also explored and a small abscess cavity found under the liver and drained. Immediately after this operation, two ounces of Epsom salts were given through a catheter. Several bowel movements followed during the next few hours. Feeding was then started and water given through the catheter. There was no vomiting from then on. Feeding by mouth was resumed on the fourth day, and gradually increased, while nourishment through the catheter was diminished and stopped entirely on the sixth day. Then the self-retaining catheter was removed by cutting off the bulbous end, allowing this to drop into the bowel. Twenty hours later, this was recovered in a bowel movement. There was considerable digestion of the skin around the jejunostomy opening for eight days after the catheter was removed. This continued until the opening closed. Convalescence from then on was uneventful. The outcome of this case would quite surely have been fatal without jejunostomy. All measures had been used to relieve the existing condition, except the discovery and drainage of the abscess cavity. It is doubtful whether this alone would have relieved the vomiting. Certainly, two objects were accomplished by jejunostomy, namely, relief of the distention, and the ability of the patient to maintain drugs, nourishment and fluids given through the jejunostomy opening.

VII. *Intestinal Obstruction.*

CASE. Female, aged 39 years. Patient had been operated upon twenty years previously for an extra-uterine pregnancy. The present operation was for a strangulated hydrosalpinx. The operation was a simple one, and without signs of infection. The patient did well for four days and then became markedly distended. The temperature and pulse became elevated. There was occasional vomiting. At first, enemata relieved the distention. On the sixth day the abdominal wound broke down from infection. On the seventh day a vaginal section was done because of signs of a pelvic abscess. A small amount of sero-purulent material was evacuated. The distention and vomiting gradually increased in spite of all the ordinary means to relieve the same. Temperature had now become normal, but the pulse had gradually risen to 120. There was frequent vomiting of yellowish material. It was quite evident that there was obstruction at some point low in the small intestine. Jejunostomy was done under local an-

esthesia. There was an immediate escape of gas and intestinal contents. The distention gradually diminished, and entirely disappeared in twenty-four hours. There was no vomiting after the jejunostomy operation, so feeding was started by mouth in twelve hours and maintained thereafter. It was not necessary to give nourishment through the catheter. Several bowel movements took place eighteen hours after operation. The catheter was removed on the sixth day. Patient made a normal convalescence from this time on. As yet, there are no signs of a post-operative hernia, though such is possible later. Undoubtedly, the obstruction was due to infection introduced at the time of operation, with subsequent matting together and angulation of the bowel. The usual methods to relieve this condition having failed, jejunostomy was successfully resorted to in this case.

Jejunostomy can hardly be expected to bring good results where the patient is profoundly poisoned from absorption of intestinal toxins. No case of intestinal obstruction should be allowed to reach this stage, although, unfortunately, it sometimes does, through ignorance on the part of the laity. Any case of obstruction where the vomiting demonstrates itself as having come from the small intestine, calls for an opening of the jejunum, and not at any lower point in the bowel. It is true that early, complete obstruction of the large bowel can be relieved by colostomy or ileostomy. I believe jejunostomy to be more or less futile in toxic paralysis of the bowel, due to general peritonitis. It is hardly to be expected that an absolutely paralyzed bowel can empty itself by simply making an opening at one point. Peristalsis is essential to the relief of toxic paralysis of the intestine, even where an enterostomy opening has been made.

There are essentially two methods of jejunostomy: one, the Witzel-Mayo method, and the other, simple suture of the jejunum to the parietal peritoneum, with catheter drainage. The latter is advantageous for certain conditions. The operation is best done in the midline above the umbilicus, or in the left upper quadrant through a muscle-splitting incision. If the patient is in good condition and more of a permanent opening is desired, as in cancer of the esophagus, the best operation is the Witzel-Mayo method. In the majority of cases, however, the patient is so very ill that the most simple technique is desirable. This is unquestionably jejunostomy by suture of the intestine to the parietal peritoneum, with catheter drainage. Novocain is here the anesthetic of choice. The layers having been carefully infiltrated, and sufficient time taken to insure anesthesia, dissection is carried down to the peritoneal cavity. The peritoneum is opened from about one to one and one-half inches. A finger is then introduced upwards and under

the transverse colon, and the jejunum felt. With the finger still in place, forceps or a curved haemostat is passed along the finger, and the chosen loop of bowel pulled into the wound. In every instance, one is practically sure of grasping the jejunum or at least a loop of intestine, high enough for all purposes. A few interrupted catgut sutures are then placed, uniting the intestine to the parietal peritoneum. Next, double purse-string sutures are taken and one loose knot tied in each. The gut is opened and the catheter introduced. Of late, I have been using a self-retaining catheter, about No. 18 French in size. This will not pull out as easily as an ordinary one. The catheter having been introduced, the inner purse-string suture is tied. The catheter is then pushed in a trifle, thus enfolding the intestine, and the second suture tied. This suture is carried through the catheter walls with a needle, and again tied, the catheter thus being made secure. With care, one may keep the self-retaining catheter in place a considerable period of time, removing it simply by cutting off the bulbous end and allowing this portion to drop into the intestine, where it is carried along the intestinal canal and finally passed. If the ordinary catheter be used, it will be found to remain in place about six days, at which time it will become loosened and fall out.

Ordinarily, jejunostomy will have served its purpose in six days. Where the jejunostomy is done by simple suture of the intestine to the parietal peritoneum, no attempt should be made to close the wound, as leakage is sure to take place after a few days. This leakage can be better cared for with an open wound than where the wound has been closed by layer sutures. With the Witzel-Mayo method, there is less chance of leakage, so that more detail can be carried out in closure of the wound. After the catheter has been removed, there is always some digestion of the abdominal wall by gastric and pancreatic secretions. Frequent dressings and irrigations of the wound, combined with the use of a preparation of compound tincture of benzoin and zinc oxide ointment on the skin, will usually keep this annoyance at a minimum.

In the successful cases of jejunostomy, the sinus usually closed without subsequent operations in from sixteen days to four months. Should the latter be necessary, a comparatively slight operation for intestinal repair can easily be done and the sinus closed. Of course, one should not include too large a section of the intestine within the suture line, lest sloughing of this area lead to a permanent fistula.

CONCLUSION.

Jejunostomy is a simple surgical procedure, by which intestinal gas and toxic material can

be well cared for in cases of obstruction; through which nutrition, drugs, and fluids can be introduced, and which, if utilized in time, is a life-saving measure.

CAESAREAN SECTION—DEATH ON THE TENTH DAY FROM CEREBRAL HEMORRHAGE.*

By R. S. Titus, M.D., Boston.

CASE 6. Multipara. Second pregnancy. Age, 30. Past History—Negative, save for attack of pyelitis in 1917. First Pregnancy—Normal. Membranes ruptured before labor on the twenty-third of June, 1919, and after several hours of active labor, Caesarean Section was done because head remained high. Convalescence following the Caesarean perfectly normal. Second Pregnancy—Perfectly normal, save for an unusual amount of sleeplessness. Second Caesarean done on July 24, 1921, after labor had started. The operation was a classical Caesarean; the abdomen when opened showed omentum adherent to the top of the fundus. This was tied and cut. There were no other adhesions. Male child weighing 10¼ pounds delivered. After the delivery of the baby, there was somewhat freer flowing than normal, but not enough to occasion worry. There was no vomiting at all after delivery. On the third day after operation her pulse in the afternoon was about 130, temperature a little over 99; her abdomen was soft with only moderate distention, but the stomach seemed distended enough to require lavage. The convalescence after this was perfectly normal until 10 o'clock in the evening of the thirty-first of July. When the baby was brought to her at this time to nurse, it was noticed that the patient showed no interest at all in the baby, looked straight ahead in a starey fashion and would in no way respond to questions. There was also possibly a little less motion in the right arm than in the left, but this was very slight, if any. For the previous two evenings the patient had had considerable headache. Her temperature at this time was perfectly normal and her pulse was 96. I thought the condition dementia. When seen the following morning, the patient lay in bed with a fixed expression, she opened her eyes at unexpected noises, swallowed food when put in her mouth, used both hands, the right possibly a trifle less than the left, and there were no other localizing signs. Her bowels and bladder were incontinent. Her temperature during this day was normal and her pulse was 92.

The following morning the patient's temperature was normal and her pulse 90. She seemed very much better, smiled and recognized the nurse, as was evidenced by her pressing the nurse's hand. She ate a large dish of cereal.

I had a medical man see her, to see if he could

* Reported at meeting of the Obstetrical Society of Boston, October 25, 1921.

make a definite diagnosis. His report is as follows:

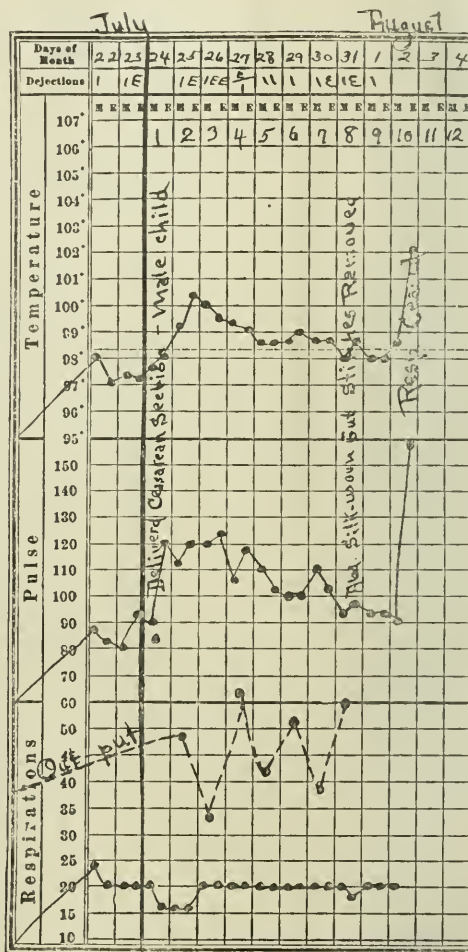
Physical Examination—Lying comfortably in bed. No dyspnea, no cyanosis. Makes no reply to questions, but when asked to put out her tongue does so. Is sensitive to pain; example, pin prick—face, arms, soles of feet. No asymmetry of face. Seems able to move all of limbs. Eyes—Pupils equal and react. Fundi normal. Ears—Both drums normal. Throat—Negative. Tongue shows no tremor, protrudes in median line. Lymphnodes—No enlargement of cervical, axillary, or inguinal. Lungs—Resonant throughout. No râles, no broncho-vesicular breathing. Fremitus normal. Heart—2-9.5 cm. Apex fifth space inside nipple line. Rate 96, regular, no murmurs. Pulses equal 96. Blood pressure 100/65. Abdomen (Recent incision covered by dressings)—soft, no tenderness, no masses. Liver, spleen, kidneys not felt. Extremities—No Kernig. Knee-jerks normal. Plantar reflexes normal. Urine—Not obtained. Blood—White count 1,600. Differential, neutrophils 86%, lymphocytes 14%. Lumbar puncture done because of white count, and 30 c.c. of bloody fluid obtained not under increased pressure. Wassermanns on blood and spine fluid negative.

About 1.45 in the afternoon of this day, after she had had three convulsions, I saw the patient, at which time her legs and arms were rigid, she was breathing normally and her pulse was under 100. Cerebral hemorrhage was naturally considered, but the reason for this hemorrhage in a person so young was hard to find. The patient remained unconscious and about 2.30 P.M. her pulse became much more rapid, and death occurred shortly after 3 P.M. The heart continued beating some time after respiration ceased. It was with a great deal of satisfaction that the family consented to an autopsy, which was performed four hours post mortem by Dr. R. N. Nye, from Dr. Mallory's Laboratory of the Boston City Hospital.

The autopsy findings were normal until one gets to the brain.

Brain—Calvarium removed with difficulty because of numerous Pacchionian granulations which extend unusually far posteriorly. Dura and longitudinal sinus not remarkable. Pia-arachnoid over hemispheres negative. In the pia-arachnoid covering the right half of the spinal cord there is a blood clot which starts about 2 cm. below the olive and extends upward over the lateral aspect of the right halves of the medulla oblongata and pons as far as the point of exit of the trigeminal nerve; this clot measures 3-4 mm. in its thickest portion. The left lateral ventricle contains dark red fluid and the right contains dark red blood clot, approximately a cast of the ventricle. This blood clot connects with a clot filling the third ventricle, and this in turn connects through the aqueduct of Sylvius to a clot filling the fourth ventricle. The clot in the pia-arachnoid covering the

spinal cord, medulla and pons is apparently a continuation of the bleeding from the fourth ventricle. The veins of Galen are thrombosed and this thrombus extends out and down into, and completely filling, the straight sinus as far as the latter's junction with the lateral sinus. The basal nuclei and fiber tracts, which form the floor of the right lateral ventricle, consist of a mass of gelatinous, almost fluid, light red-brown tissue. On sectioning the basal ganglia on the



left, numerous pin-head, bright red, irregular areas appear, probably due to diffusion of blood from cut vessels. Cortex, cerebellum and spinal cord negative. Middle Ears—Negative.

Anatomical Diagnoses: Cerebral softening (right basal ganglia) with hemorrhage into ventricles and pia-arachnoid of cord and with thrombosis of Galen's veins and the straight sinus. Pulmonary congestion, slight (right lower lobe). Subinvolution of uterus. Lactating breasts. Post-operative abdominal wound. Post-operative uterine wound. Fatty changes in aorta—slight.

Microscopical Examination: Basal Ganglia (left)—Definite thrombosis of one of the larger blood vessels. All the other larger blood vessels are surrounded by small or larger areas of ex-

travasated red blood corpuscles. Many of the smaller blood vessels are similarly surrounded by small foci of extravasated blood. In many of these the vessels cannot be made out, suggesting softening. At the peripheries of all these areas of hemorrhage are found moderate numbers of neutrophilic polymorphonuclear leukocytes. No organisms are seen. Galen's Veins—Section through both shows completely obliterating thrombi. No organisms seen. Pons—All the larger blood vessels in the peduncles are surrounded by areas of extravasated blood. There are no obvious thrombi. Some of medium sized blood vessels appear to have walls of unusual thickness. Cerebellum—Negative. Spinal Cord—Massive hemorrhage in the meninges.

A TRIBUTE TO A PIONEER IN MODERN PATHOLOGY.

By J. C. WARREN, M.D., BOSTON, AND S. J. MIXTER, M.D., BOSTON.

THE death of Dr. William Fiske Whitney on March 4, 1921, was an event which brings home to the memory of his contemporaries a long career of useful service.

Entering on his professional work at a time when the microscope had just begun to be a prominent feature in medical teaching and in the practice of medicine, he was appointed Curator of the Anatomical Museum of the Harvard Medical School in 1879. He brought with him to this office as thorough a training in the laboratory branch of medical education as prevailed at that time in the prominent medical centers of Europe.

He came into his new position at a transition period when scientific medicine was beginning to assume a prominent place in the medical curriculum. The old anatomical collection, like that of the Musée Dupuytren in Paris, and many others, represented the labors of an earlier generation. The field was an open one for the new-comer, and Dr. Whitney promptly took advantage of the situation and became a pioneer in modern museum work, which, under the fostering influence of the Association of International Museums, has of late years become so prominent a feature of the modern medical plant.

During his long and devoted term of service as Curator, the Museum has twice found a new home, and a comparison of the present quarters with those in the old building on North Grove Street, of which Dr. Holmes said: "Oh, star-eyed Science, hast thou wandered there!" is a sufficient indication of the amount of work Dr. Whitney has been able to accomplish. The character of his work in this field is best enumerated by one who has rendered him faithful and efficient service during many years.*

"Dr. Whitney was especially fitted to fill the position of Curator, on account of his wide range of knowledge on all subjects, and his familiarity with more than half a dozen different languages.

"He spent much time and thought on the present home of the Collection, visiting many museums in various parts of the country, which enabled him to eliminate impractical features. When the time came for moving the thousands of specimens, the picture of every detail was so clearly in his mind, and they were packed in such a manner that he was able to put them at once in their proper places, and not one specimen was injured.

"He succeeded so well in the accomplishment of his purpose that during the Medical and Surgical Congress in June, 1921, strangers from various countries expressed their admiration of what they considered 'one of the finest museums they had ever had the good fortune to visit.'

"Dr. Whitney aimed to have the museum simple, quiet and dignified, as it represented human suffering, and he hoped in the study of the specimens, alleviation of pain might be found. It was to him a sacred trust, in the fulfilling of which he never spared himself in any way. He felt that the value of the Museum was in its use, and extended the resources as far as it was consistent with the safety of the specimens, and a request was never refused under these conditions. As a result, many valuable contributions were secured because the donor felt 'they would be carefully preserved.'"

But it is in another field that Dr. Whitney will probably be best remembered by his contemporaries. Dr. Whitney was preëminently a clinical pathologist and his intimate association with many medical and surgical colleagues at a time when the field of medical practice was greatly expanding, enabled him to be of great service to them in their practice. The pathological reports which he sent to his medical colleagues at a time when the practising physician was becoming more and more dependent upon pathological findings, were models of their kind.

It was, however, in the domain of surgery that he was able to figure as a pioneer in a special line of work. The surgeon of today has little conception of the difficulty of obtaining reports upon examination of tumors and other morbid specimens, which prevailed at that time. The specimen was often lost or rendered unfit for microscopical examination. This was true of hospital as well as of private clinical work. The Cabot endowment for a laboratory for such a purpose at the Massachusetts

* Miss E. Harriet Piper

General Hospital. enabled Dr. Whitney to train himself to meet the demands of the time, and this experience was followed up by his active participation in private surgical work. Accompanying the surgeon, as he did, to the place of operation, he soon found the necessity of perfecting a method of rapid diagnosis. At the hospital an appropriate apparatus made it possible for him to obtain frozen sections for this purpose.

But eventually his long experience and tactical skill enabled him to dispense with such adventitious aids, and he could give a reliable opinion on any doubtful point bearing upon the character or scope of the operation which was of invaluable service to the operating surgeon. It is hardly more than fair to say that Dr. Whitney was not only the pioneer, but the originator of this form of quick diagnosis. To many surgeons his presence at such operations was indispensable, and his final written report was of greatest value in enabling the surgeon to forecast the future of a given case.

Dr. Whitney in his long career has undoubtedly left many valuable written contributions to his department of medicine, but it will be by the work he was able to accomplish along the lines indicated above that he will be most gratefully remembered. So extensive and varied was his experience in the later years of his life that his opinion was regarded as a standard authority.

Dr. Whitney had a large amount of valuable information on many other subjects which would have been more conspicuous, had it not been for the modest estimate of his own qualifications, and his retiring disposition. He was always to be found either at his laboratory table at the hospital or at his desk in the museum.

On the removal of the Harvard Medical School to its present quarters the Museum was fortunate in receiving a handsome endowment, and the manner in which Dr. Whitney administered its finances enabled him to make, from time to time, many valuable additions, and when the call finally came, it was shown that his trust had been administered with discretion and fidelity.

Covering, as he did, a period of work which extended beyond that of a single generation, he lived to see vast changes in the methods of research and great additions to the knowledge of his special branch of medicine. He grew old in a service in which new ideas and new methods were constantly making their appearance. The vast field thus opened was greater than it was possible for any one man to cover, but the lines along which he made his first beginnings and to which it is probable he wisely confined himself hold good today.

Dr. Whitney was born in Boston March 26,

1850, and died March 4, 1921, of cerebral hemorrhage.

He graduated from Harvard University in 1871, and from Harvard Medical School in 1875. He then studied anatomy, pathology and other subjects in Vienna, Berlin, Munich and Strassburg. Upon returning to this country he was appointed pathologist to the Massachusetts General Hospital in 1878, and the following year, 1879, he was appointed Curator of the Warren Anatomical Museum, Harvard Medical School, and continued in this position for 42 years, until his death.

In 1888 he married Louisa Elliot of Stockton, Calif., who, with two sons, Lyman Fiske Whitney and William Elliot Whitney, survive him.

From 1883 to 1890, Dr. Whitney was Secretary of the Medical Faculty, and part of that time was also Acting Dean. About this time he was sent to Europe by the Government for the investigation of tuberculosis. From 1891 to 1901 he was connected with the Harvard University Veterinary School as Professor of Parasites and Parasitical Diseases. He served on the committee to superintend the building of the old medical school on Boylston Street in 1880, and twenty years later served in a similar capacity in erecting the new group of buildings on Longwood Avenue. He was also for many years on the Administrative Board of the Medical School, filling that position during the first years in the buildings now occupied by the school.

He was President of the Obstetrical Society and presided at the fiftieth anniversary. He also had been President of the Massachusetts General Hospital Alumni Association, Vice-President of the Boston Society of Natural History, having been connected with it for many years. He was a member of the American Medical Association, the Massachusetts Medical Society, the International Association of Medical Museums, and many others.

One of his life studies was carcinoma, and he was author of many articles on the subject. In 1901 he gave the Shattuck Lecture at the annual meeting of the Massachusetts Medical Society, on "The Alleged Increase of Cancer in Massachusetts." This was the result of his studies of statistics from all over the world, and from which he made his "Comparative Study of Death Rates from Cancer for the years 1850, 1875 and 1900." For many years he made up his results every five years.

The long friendship with Dr. Whitney, for some of us, had its beginning when he first took up his professional work in the old building of the Medical School in North Grove Street,—that old, cramped, inconvenient building, with its history and traditions, its wonderful teachers, its out-of-date chemical and pathological laboratories, with only two lecture rooms, its steep stairs to the anatomical amphitheatre, and its museum, in small and crowded

quarters, with its imposing array of phrenological casts, as well as the splendid dissections of Holmes, Hodges, Jackson and other masters.

We saw him bring order out of chaos, introduce what were then modern methods, and, with his exceptional skill with the microscope, added to his executive ability, assist in building up and encouraging the splendid system of pathological and bacteriological teaching of which we are so proud.

Those were the days when scientific instruments and appliances were few, and money to buy them not to be had from the school, when alcohol and other chemicals were hard to get for lack of funds. There were no microtomes worthy of the name, and all the discoveries and advances in microscopical pathology had been made through the study of hand-made razor sections, and a large, thin section was unknown, even to Bilroth. Is it not probable that training in this school of scanty equipment was what helped to give Dr. Whitney his wonderful skill in quick diagnosis, and knack in the examination of fresh specimens?

Then came the construction of and moving into the new building on Boylston Street, the building that seemed, at the time, to be ample for the needs of the school for many years. Moving the precious contents of the old museum to their new quarters that he had so carefully planned was an anxious time, for it meant not only moving without breakage, or other damage, but the elimination of the useless and unfit. This being safely accomplished, it only remained for him to move into the new Sears laboratory in order to gain fresh impetus for his work and for him to grow in knowledge and skill, a growth that ended only with his life.

And that life was a happy one; happy in his family and home, happy in his friendships,—for he never had an enemy,—happy in his work.

To that work he devoted himself too closely, his friends thought. Every day at the school, every day at the hospital, and his constantly increasing consultation and medico-legal work left little time for recreation and relaxation. Even during the short summer vacation that he allowed himself, he was always on duty call, though no one loved the call of the sea more than he did, and no one who knew him well ever summoned him from his boat or his rest without regretting the necessity for so doing.

There is no branch of the medical profession which does not owe much to Dr. Whitney, but to the surgeons associated with him he became a necessity, a part of their professional lives. The hesitating surgeon, knife in hand, uncertain whether to do a trifling operation or one terribly mutilating and severe, could always depend on the decision of his master mind and vast experience, and a great number of men and

women today owe their intact bodies, or their lives, to his quietly spoken opinion.

In the hospital or in the home, with the rich or the poor, his presence meant the difference between haphazard surgery and intelligent surgery, between life and death. In the domain of rapid, exact surgical diagnosis, he was the unquestioned leader.

Another field in which he excelled, was in medico-legal work. His opinions and conclusions were always convincing, his decisions were accepted by the counsel for both sides, and he was universally commended for his fairness to both plaintiff and defendant. He never made a statement that he was not perfectly sure of, and could substantiate in every way.

As a medical man, he was able, exact, careful, progressive and just.

As a man, husband, father and friend, he was lovable and loving, kindly, gentle, courteous and too modest; a power for good in the hospital, school and community. In his death mankind has lost a willing helper, and we, a dear and devoted friend.

A PARTIAL LIST OF ARTICLES PUBLISHED BY DR. WHITNEY.

- The Identification of Seminal Stains. (1897.)
- The Possibilities and Limitations of Microscopic Diagnosis.
- The Alleged Increase of Cancer in Massachusetts. (1901.)
- Classification of Cancer upon an Embryological Basis. (1901.)
- A Comparative Study of the Death Rates for the State of Massachusetts for the Years 1850, 1875, and 1900. (1904.)
- A Study of Birth Rates, General Death Rates and Death Rates from Cancer for the New England States for the Year 1900. (1905.)
- A Study of the Statistics of Cancer in Massachusetts for the Year 1905. (1910.)
- A Quick and Simple Method for Fixing the Blood Corpuscles for Differential Staining. (1901.)
- Notes on the Production of the Test Serum in Rabbits. (1902.)
- Pyronin-Methyl Green; a Brilliant Double Stain for Cells and Bacteria. (1903.)
- A Brain Hardening by Jaisersling Method Showing the Track of a Bullet. (1903.)
- The Aloin and Guaiac Test for Blood Depends Solely upon the Iron Contained in the Hemoglobin. (1907.)
- Varicose Veins of the Papilla of the Kidney. A Cause for Persistent Hematuria. (1908.)
- The Galloux Murder. A Case Solely of Circumstantial Evidence with Conviction of the Murderer. (1909.)
- A Delicate Method of Obtaining Hemin Crystals from Minute Blood Stains. (1912.)
- Cyanic Poison and the Tests for Its Detection. (1915.)
- Observations on Obtaining Hemin Crystals from Dried Blood. (1920.)
- A Sudden Death Following Intravenous Injection of Neosalvarsan. (1921.)

THE RESPONSIBILITY FOR DIPHTHERIA

BY JOSEPH GARLAND, M.D., BOSTON.

DIPHTHERIA, always a menace and public health problem, has become a public disgrace. While diphtheria was still a disease of unknown etiology, difficult of diagnosis and unsatisfactory to treat, it was feared because of the enormous toll it exacted and because the medical profession was without power in its efforts at control. These times have changed. Diphtheria can now be successfully treated and entirely controlled, and, if the proper measures were always adopted and uniformly carried

out, would eventually disappear from our list of dangerous diseases. The responsibility for the fact that it has not done so must fall upon the medical profession, which has the weapons to subdue this foe, and has not yet made full use of them.

Various terms were interchangeably used for diphtheria previous to 1821, when the present name was given to the disease by Bretonneau. Subsequently croup, even of the membranous type, was separately reported until recent years. For many years it was confused with various other diseases, including scarlet fever, until the organism was discovered by Klebs in 1883. Seven years later, Behring discovered antitoxin; in 1894 it was first used in this country, and since that time diphtheria has been a curable disease in practically all cases, if treatment is instituted early enough and in sufficient degree.

Previous to the general adoption of antitoxin, the death rate from diphtheria was about 150 persons out of every 100,000 in our population, with an average fatality percentage of about 28. Of these deaths, some 65 per cent. occurred in children under five years of age. Diphtheria antitoxin could potentially reduce this mortality to almost zero. Practically it has reduced it to about 18 deaths per 100,000 of population, with an actual fatality rate of 7-10 per cent., where it has remained stationary for years. Delay in calling the physician, mistakes in making the diagnosis, and delay in administering antitoxin in sufficient amount, are the chief factors in maintaining this level. Even with this reduction in mortality, the following figures prevail:

Calculated yearly mortality from diphtheria in the United States, 20-22,000, of which number over 60 per cent. are under five years of age

NEW YORK CITY, 1913-1917

	MORBIDITY	MORTALITY
Total	73,068	6,291
Yearly average	14,613	1,258
1919-1920, total	over 28,000	2,280

MASSACHUSETTS, 1916-1921

	MORBIDITY	MORTALITY
1916	7,283	629
1917	10,322	838
1918	6,922	604
1919	7,929	591
1920	7,513	595
1921	9,061	476*

* First ten months only.

Recently the Massachusetts State Department of Public Health investigated one thousand deaths which occurred from diphtheria in this state, attempting "to ascertain what factor might be present and common to all of these deaths, to fix a theoretical responsibility, and to plan, as far as possible, for their prevention in the future."

Dr. Carey reported, "These statistics furnished much food for thought and some of our

findings were truly startling. Some of the more unsuspected findings were that 31.5 per cent. of these deaths occurred in individuals who had been sick one week or more without medical attention; 11.8 per cent. occurred in individuals who were moribund at the time of the doctor's first visit; 7.6 per cent. occurred in individuals in whom the condition was unrecognized until it was too late for the antitoxin to be efficacious, and 65 per cent. of these deaths occurred in children who were five years or under."

"The source of infection was given as unknown in nearly 90 per cent. of these deaths and the forms of the disease, in order of frequency, was laryngeal, pharyngeal, and nasal."

"From these investigated deaths, it appears that more attention must be paid to this group of individuals who fall within a pre-school age group, and intensive effort made to bring both to the profession and to the laity a more complete knowledge of the prevention and control of diphtheria."

In 1903, W. H. Park published a series of successful toxin-antitoxin immunizations on animals. Theobald Smith at that time suggested the possibility of immunizing children, but this was not attempted until 1913, when Behring reported results on human beings with toxin-antitoxin. In this year, also, the Schick test was introduced, and with the introduction of a practical method of determining susceptibility and natural and acquired immunity to the disease, came the possibility of putting toxin-antitoxin immunization on a practical basis. At this time Park and Zingher started their series of tests on scarlet fever patients at the Willard Parker Hospital, a series that has demonstrated the value of the test and subsequent toxin-antitoxin immunization of susceptibles.

The theory and technique of these procedures have been described so many times that it would be at the risk of needless repetition to devote much space to them at this time. Briefly, it was found by complicated tests that individuals with less than 1/30 unit of diphtheria antitoxin per cubic centimeter of blood may contract diphtheria. Those possessing this, or a larger amount of circulating antitoxin rarely, if ever, contract clinical diphtheria. The Schick test, consisting of the intradermal injection of 1/50 of the minimum lethal dose for a 250 gram guinea pig, of active diphtheria toxin, determines whether an individual possesses the protective amount of natural antitoxin. If 1/30 unit per cubic centimeter of blood is present, the injected toxin is neutralized, and no true reaction occurs. If less than this amount is present a local reaction takes place, consisting of a reddish area of infiltration, starting in 24-36 hours, reaching the height of its intensity after about four days, and then gradually disappearing. Pseudo reactions are due to an individual sensitiveness to the protein of the diphtheria bacillus, present in the test toxin.

The technique used with the products of different laboratories may differ slightly. In Massachusetts the contents of one capillary tube when discharged into 10 c.c. of sterile salt solution, as contained in the bottles provided with the outfit, furnishes a dilution of which 0.1 c.c. contains the amount of toxin required for the test. The control of heated toxin is prepared in the same way. In passing, it may be well to mention that the Massachusetts State Antitoxin Laboratory, founded by Theobald Smith, is not only licensed and inspected by the Federal Government, but conforms to rules of its own devising, exceeding in strictness those required by the Government. The reliability of products of this laboratory is above question.

Active immunization with toxin-antitoxin consists of the subcutaneous injection, in susceptible individuals, of active diphtheria toxin, sufficiently neutralized with antitoxin to render it harmless to the individual. This immunity is slow to develop, and after the course of three injections five or six months should elapse before re-Schicking, to test for the desired immunity.

There occurs, probably, not over 2 per cent. of error in the Schick test. In annual re-tests, carried out in institutions by Dr. Zingher, Dr. Schroeder, and others, 1.5 per cent. of the negatives of one year develop a positive reaction on the next annual test. Dr. Park believes this change is to be accounted for by error in technique and difference in toxin preparations. Slight fluctuation in the amount of natural antitoxin possessed by the individual may cause borderline cases to give, at times, positive and, at times, negative, reactions.²

The increase in the use of the Schick test and toxin-antitoxin has been phenomenal in the past four or five years, with New York as the pioneer city. Work in the public schools of New York was started in 1916, when the Department of Education gave permission to carry out the Schick test and active immunization in about two hundred and fifty schools.

During the past year, funds having been obtained from the Manhattan Chapter of the American Red Cross, the Schick test was applied in forty-four of the larger schools of Manhattan and the Bronx, over 52,000 children having been tested between the last of February and the end of the school year. This was all done, of course, with the parents' consent after circular letters had been distributed.

Children showing positive reactions were immunized with toxin-antitoxin. As a rule, children with straight positive reactions showed little local disturbance. Children with positive combined reactions showed considerable local redness, swelling, and tenderness of the arm at the site of injection, and varying degrees of constitutional disturbance. None showed any after-effects, and practically no local reaction oc-

curred among younger children. In over 50,000 immunizations there was never a single harmful result or a single infection.

In a school where those showing a positive test had received all three injections and had been re-tested after five months, 87.5 per cent. had become immune. Those still positive gave much fainter reactions and they received a fourth injection. Of schools where two injections had been given and re-tests made after two or two and one-half months, the per cent. of immunization varied from 64.5-76.1 per cent.

Other interesting data regarding susceptibility and immunity have been brought out by Zingher in this large series. Children from homes of the well-to-do show a higher percentage of positives; as high as 67 per cent. in some schools. In schools on the East Side of New York the percentage was as low as 16-20 per cent. The Lawrenceville School for boys at Trenton, N. J. (ages 12-21), showed 79 per cent. positive. At George School, Georgetown, Pa., the percentage was 75. In a rural school at Shilo, Cumberland County, N. J., the percentage of positiveness was 85.

Racial factors were also brought out. The colored race gives a high percentage of positives. Italians from crowded sections give the lowest. Bohemians and Irish are about one-third positive. Children of the same family have a tendency to show similar reactions. Contact immunization seems to play an important part in the production of natural immunity, and the same contact produces development of hypersensitiveness of individuals to the protein of the diphtheria bacillus, resulting in pseudo reactions.

Zingher has also, for purposes of practicability, made a division into age groups which it might be well to present here.

A. Infants Under Six Months.

(a) Under three months. Mostly have natural immunity. Do not develop active immunity after toxin-antitoxin.

(b) Three to six months. Generally immune. Toxin-antitoxin not as effective as later.

B. Pre-school Age.

(a) Six months to two years. Omit Schick test. Give toxin-antitoxin to all.

(b) Two to five years. Schick test may be used, but positive reactions very high. Simpler to inject all.

C. Public School Age.

(a) Five to six years. Advisable to inject all.

(b) Six to fifteen years. Use Schick test first.

D. High School Age.

Fifteen years and over. Schick test first.³

Some of these subdivisions would seem to be unnecessary. For practical purposes, four main divisions, according to age groups, with a separate procedure for each group, would be simpler.

A. Under Six Months.

This group is generally immune, but since the occasional case of diphtheria is liable to be fatal, the Schick test should be performed. If negative, re-Schick after six months, when the passive maternal immunity is lost, or, as the child would then fall into the next group, proceed with immunization. If the test is positive, proceed with immunization as with any other positive case.

B. Six Months to Six Years.

The Schick test being generally positive, immunize without testing.

C. Six to Eighteen Years.

Use the Schick test and immunize the susceptibles.

D. Over Eighteen Years. Adult Group.

Use the Schick test and advise as to the desirability of immunization, especially if the individual is liable to exposure to diphtheria.

The example set by New York is now being followed by many communities over the country. In Chicago, a commission appointed by Health Commissioner Robertson, has advised that city to make use of the Schick test and toxin-antitoxin, and over 12,000 persons have been immunized. This is but one example of many.

In Massachusetts, the work is under way, but much remains to be done. Certain school districts have taken up the work in Boston, notably the William Lloyd Garrison District; and other cities, such as Northampton, Holyoke, Chicopee, Springfield, Hingham, Brockton, Winchendon, Lawrence, and Waltham, are following the lead set by Lynn and Newton, two pioneer cities that have ably taken control of the situation. Work in the schools is soon to be undertaken by Framingham and Winchester.

Demonstrations of the test were conducted by the writer in various cities of the State during the spring, in the interests of the Committee on Public Health of the Massachusetts Medical Society,⁴ and further meetings of the same nature are, at present writing, being planned for the winter.

All school children in the Commonwealth should have the opportunity, through the schools, of being tested and immunized. All health boards should be equipped and ready to perform the test and subsequent immunization. Every family physician should be prepared to

use the test among his practice, or if too busy or otherwise unable to carry it out personally, should see that it is done by a capable individual, whether by the school physician, at a Board of Health clinic, or elsewhere.

Diphtheria is a preventable disease, and the agents for its prevention have been placed in the hands of the medical fraternity. The responsibility for their use and the responsibility for the combined existence of this disease is ours alone. Education of the laity, the awakening of the public to the benefits that can be derived from any form of medical advancement, are in our hands, and our duty is clearly before us.

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Book Reviews.

Therapeutic Immunization. By W. FORD ROBERTSON, M.D. New York: William Wood & Co.

In this volume of less than 300 pages, the author discusses the general subject of immunology and the entire field of bacteriological methods and, in addition, the treatment of diseases by means of bacterial vaccines. His chief ally in this work seems to be R. W. Allen, to whom he refers constantly as his *vade mecum*.

The first chapter is devoted to a discussion of the terminology and theories of therapeutic immunization. He then, at great length, discusses the bacteriological methods and the differential diagnosis of species, the methods of clinical investigation of infections, and the standardization of bacterial emulsions. So far, although the subject matter is somewhat sketchy considering the profundity of the subject he discusses, his information is adequate. In looking over the rest of this volume, one, at first, meets with certain statements which are surprising, to say the least. For instance, referring to the pneumococcus of pernicious anemia, he states that he has known for years "that the commonest form of pernicious anemia is due to an intestinal infection by a special type of pneumococcus." He bases this on thirteen cases.

In taking up the treatment of bacterial infections, one finds statements of a similar caliber. Concerning influenza, for instance, one reads that "therapeutic immunization has been found to cut short the malady," and "It has been satisfactorily established that preventive

inoculation against the bacillus of influenza protects from the disease." He believes that pulmonary tuberculosis, even in the advanced stages, can be satisfactorily treated with various forms of tuberculin. Vaccines are likewise of distinct value in acute lobar pneumonia, chronic bronchitis and asthma. Ozena yields to treatment with vaccines, as does chronic otitis media, hay asthma, bronchial asthma and, as mentioned above, phthisis, concerning which he says, "There is no form of chronic infection in which good results may be expected with more confidence than in pulmonary tuberculosis." Acute tonsillitis, gastric catarrhs, and, *mirabile dictu*, duodenal ulcers, are benefited by this means of treatment. The two cases which he mentions recovered "under surgical measures and therapeutic immunization." His opinion in this instance is based on three cases of duodenal ulcer in which the flora of the stools were studied.

The reviewer's credulity had already been stretched to the breaking point at this stage, but when he found that mucous colitis, appendicitis, neurasthenia, exophthalmic goitre, disseminated sclerosis, tabes dorsalis, the acute insanities, dementia praecox, etc., are benefited by bacterial vaccines, he felt that nothing more concerning this volume need be said, except that he cannot recommend it for anything except as a medical curiosity.

Cancer and its Non-Surgical Treatment. By L. DUNCAN BULKLEY, Senior Physician to the New York Skin and Cancer Hospital. 451 pp. Wm. Wood and Company.

The argument of Dr. Bulkley's treatise on cancer may be briefly stated in this way: Cancer is increasing among civilized peoples, but is found only rarely among aborigines. The latter lead simple lives, free from worry and self-indulgence. The former, especially the well-to-do, are self-indulgent, overfed, under-exercised. They consume food rich in purin bases—meat, tea and coffee. Somewhere in the divergent customs of the two peoples lurks the cause of cancer. As Dr. Bulkley puts it (p. 167): "There must, therefore, be some occult, if you please, process going on in the system, which lays the foundation, so to speak, for the morbid response of the cells to such irritants, something which so alter their nutrition that disturbance of their integrity results, and instead of pursuing their normal course of homologous reproduction, or fulfilling their secretory powers, they take on a new heterologous formation and begin a wild, unrestrained, and destructive course, with the well-known results. This primary or basic cause is found in the disordered nutriment which they receive through blood which has been deranged in various ways and by various causes."

Having stated this hypothesis as a fact (and who indeed can say that it is not one?), the author proceeds to apply it in the treatment of malignant disease. The surgical treatment of cancer he shows to be very often inefficient. Figures and quotations from a number of leading operators are given, all pointing to the low percentage of cures obtained. More persons died of cancer in 1915, following the propaganda for early operation put forth in 1914, than in the average years of the preceding semi-decade.

In place of surgery, he proposes "proper dietetic, hygienic and medicinal measures." The dietetic measures consist of a practically vegetarian diet, arranged to give 2100 calories per day, of which 140 are protein. Hygienic measures consist of a well-ordered life, thorough mastication of food, regulation of the bowels and well-ventilated sleeping apartments. Medicinal measures consist of the administration of potassium salts, which are supposed to be inimical to cancer cells, thyroid gland extract, to increase the metabolism, and aspirin for pain. If the lesion is suitable for local treatment, it is painted with iodine, or thiol, or ichthyol. In carcinoma of the uterus, douches of carbolic acid and boracic acid are prescribed.

"By these means," he says, "the disease can be and has been successfully checked, and cancerous lesions actually removed without surgical intervention" (p. 240). "I do assert that the percentage of benefit and cures in reasonable cases is far, far greater under the line of treatment here advocated than under that commonly employed" (p. 241).

A number of case reports are given.

It is hard to criticize with any degree of asperity as sincere a book as this one of Dr. Bulkley's. Here is his creed, practised, as he himself says, for over 30 years. His theory of the cause of cancer, vague though it is, may yet contain much truth. There must be some reason for the vastly greater incidence of cancer in civilized people, and Dr. Bulkley's guess at the reason may be as good as the next man's.

His method of handling these cases is, without doubt, beneficial. If we all ate less, chewed more and worried less about taxes, we should live longer.

As a specific treatment for carcinoma, the method does not ring true. In the first place, if its results were so successful as the author claims, it would long ago have been universally accepted. Even the case reports given in his book do not sound convincing. The majority of them are very vague. A man with "typical cancer" of the tonsil (no pathological report) changes his diet, gargles soda bicarbonate, and is cured. A case of cancer of the bladder "writes that he is much relieved." Several of the really striking cases had been treated

with heavy doses of radium before coming to Dr. Bulkley. Obviously, they came to him during the depressed stage which follows adequate radiation, and their later improvement, which would have occurred anyway, he attributes to his method.

Dr. Bulkley is to be commended for his effort to find the cause of cancer. He is to be commended for the meticulous care with which he instructs his patients as regards their mode of life. His opinion that his method is more efficient than surgery in the treatment of such cancers as can be removed surgically is wrong. His teaching in this respect is heresy; his book should be burned at the stake.

The Care of Eye Cases. By ROBERT HENRY ELLIOT, M.D., F.R.C.S. Oxford Medical Publications.

Dr. Elliot has added a new book to the list already written by him. This new book is a manual on the care of eye cases, written particularly for the general practitioner, nurse, and student. It treats in a practical way many subjects which are omitted from larger textbooks on ophthalmology.

Part I of the book deals with the subject of treatment. It gives in detail many important steps in the process of ocular treatment which would not be otherwise obtained except by actual experience. For instance, one chapter is devoted to the subject of Drops and another to Subconjunctival Injections.

Part II contains a brief résumé of ophthalmic diseases and methods of refraction.

Part III gives in detail a list of the instruments used in the different ocular operations and several pages of illustrations of ocular instruments.

The book should find favor as a manual in the training schools of all eye hospitals.

Anatomy of the Human Orbit and Accessory Organs of Vision. By S. ERNEST WHITNAL, Professor of Anatomy, McGill University, Late University Demonstrator of Human Anatomy, Oxford.

This book is the latest ophthalmological work in the Oxford Medical Publications. It is the most comprehensive treatise on the subject of the Human Orbit that the reviewer has had occasion to see, containing as it does about four hundred pages of text profusely illustrated with photographic cuts and drawings.

The subject-matter of the work originally formed the substance of a series of lectures given to candidates for the Oxford Diploma of Ophthalmology. The author covers in minute detail the anatomical structure of the orbit and related parts. The contents are presented in

three parts: Part I covers Osteology; Part II, The Eyelids; Part III, Contents of the Orbit.

Limited space forbids a detailed review of this unusual book, but to the surgeon, either oculist or rhinologist, the work should prove of great interest and value in the study of the anatomy of the orbit.

The illustrations are mostly from photographs of dissections preserved in the Oxford Anatomical Museum, and are unsurpassed in the portrayal of the subject.

Radiographic Technique. By T. THORNE BAKER, A.M., I.E.E. 196 pp. New York: William Wood and Company: 1921.

The production of x-ray plates of diagnostic value is essentially a photographic process. Much of the advantages of expensive high-powered x-ray equipment and elaborate exposure technique is often lost through faulty dark room manipulation. Mr. Baker has produced a manual of the essential principles of photographic processes as applied to radiography. The subject covers a good deal of technical material, but on the whole is expressed in non-technical language and readily understood by the average physician.

The first chapter is devoted to a very elementary description of the principles involved in the production of x-rays as exemplified by coils and gas tubes. Chapter two is devoted to photochemistry. The characteristic properties and special features of x-ray plates are discussed, and the factors which govern speed, density, contrast, exposure time, and radiometric measurements are explained. Chapter three is devoted to the theories of development. The function of each of the ingredients in developing and fixing solutions is described, and the various methods of controlling the photographic processes by varying these factors are illustrated. The reasons for poor plates, technical flaws, etc., and the methods of avoiding or correcting them, form a valuable part of the book. There are also some very good suggestions on the arrangement of a photographic dark room, and on the method of handling and storing plates. Chapter four is a rather technical discussion of the construction of intensifying screens from the photo-chemical viewpoint. There are some good suggestions on the selection of screens for special purposes. Chapters five and six, on fluoroscopy and the location of foreign bodies, are brief and elementary. Chapter seven, on dark-room arrangement and equipment, should also be useful to the beginner. Chapter eight, on the methods of intensification and reduction of unsatisfactory negatives, covers a ground with which the average physician-roentgenologist is unfamiliar. Chapter nine describes the advantages and disadvantages of the various printing papers as applied to the radiographic image.

It contains some excellent suggestions for those who are preparing x-ray illustrations for publications. Chapters ten and eleven mention briefly some of the possibilities of x-ray photography in industrial fields and in spectrum analysis.

In summary, this volume as a purely photographic manual fulfills a very definite need. It contains a number of useful photographic formulae. It should be especially valuable to the general practitioner who has installed an x-ray unit, but is not familiar with the principles of photography.

Clinical Surgical Diagnosis. By F. DE QUERVAIN; translated by J. Snowman, M.D. New York: William Wood and Company. Third English Edition.

This is the translation of the seventh edition of the original, which has been thoroughly revised, incorporating the recent progress in both military and civil surgical diagnosis. For instance, the accurate localization of foreign bodies by the use of x-ray is thoroughly covered. Its 914 pages are very generously illustrated with 731 excellent photographs and seven colored plates.

Professor de Quervain, who has succeeded to the chair of surgery held by Kocher, needs no introduction to the profession of this country. He writes in a very readable style rendered even more vivid by the profuse use of illustrations. Unfortunately, certain subjects are passed over rather lightly, while the material on a few other conditions is divided between different chapters. This somewhat impairs its value as a reference book. However, for use as a text for students this lack is more than counterbalanced by the great clearness of description and illustration.

Life and Times of Ambroise Paré. By FRANCIS R. PACKARD, M.D. New York: Paul B. Hoeber. 1921.

This new biography of Paré, by the Editor of *The Annals of Medical History*, is an authoritative contribution to our knowledge of one of the makers of modern medicine. Its primary object is to present a new and complete English translation of Paré's *Apology and Treatise Containing the Voyages Made into Divers Places*, which occupies more than half of the present volume. This translation is literal and idiomatic, and reproduces the spirit of the author and his times as vividly as is possible to those unable to read the original text. The book is abundantly illustrated with numerous text wood-cuts, 27 full-page plate engravings, and two folded maps of Paris in the sixteenth and seventeenth centuries. We owe

much to Dr. Packard for bringing before the medical public this biography and translation of one of the principal works of the greatest military surgeon in the history of France.

Preventive Medicine and Hygiene. By MILTON J. ROSENAU, Professor of Preventive Medicine and Hygiene, Harvard; Director of the School of Public Health of Harvard University and the Massachusetts Institute of Technology; formerly Director of the Hygienic Laboratory, U. S. Public Health Service, etc.

With Chapters upon: "Sewage and Garbage," by GEORGE C. WHIPPLE, Professor of Sanitary Engineering, Harvard; "Vital Statistics," by JOHN W. TRASK, Assistant Surgeon-General, U. S. Public Health Service; "Mental Hygiene," by Thomas W. Salmon, Medical Director, National Committee for Mental Hygiene, etc.

In his fourth edition of *Preventive Medicine and Hygiene*, Professor Rosenau has consistently adhered to his original purpose to give in textbook style a comprehensive summary of up-to-date information regarding those medical and scientific subjects which furnish the basis for public health work. The book represents a very extensive revision of previous editions. The following entirely new subjects have also been added: Public Health Methods and Measures; Relative Values in Public Health Work; A Public Health Program; Organization of Health Departments; Median Endemic Index; Housing; Rural Sanitation; Public Health Education; Public Health Nursing; Drug Addiction; Alcoholism; Undernutrition; Sanitary Surveys; Infant Mortality; Koch's Laws; Intelligence Quotient; Vitamins; Oral Hygiene; Ocular Hygiene; Personal Hygiene; and a Laboratory Course in Preventive Medicine and Hygiene.

Several chapters have been contributed by other writers and, in all, Professor Rosenau makes acknowledgment of special assistance from about forty different persons prominent in medical or scientific fields, besides giving copious references to bibliography.

In supplementing his own work for years by thus freely calling upon others, Professor Rosenau has succeeded in condensing in a book of about 1500 pages a remarkable amount of information regarding the subjects with which the book deals.

As might be expected from Professor Rosenau's long and varied practical experience in public health work, he tends to present this information with view to its practical usefulness. The work is full of practical suggestions and valuable admonitions, of which an unobtrusive enumeration of some of the common conditions

other than syphilis, which will give a positive Wassermann reaction, may be cited merely as one refreshing example.

Whoever undertakes to give, within a brief space, text-book instruction regarding subjects so wrapt in obscurity or uncertainty as, for example, bodily metabolism, or the etiology of certain diseases or the relative values of expenditures for public health purposes, cannot avoid furnishing opportunities for criticism. In spite of the effort to bring this edition up to date, there are some instances where it would have been possible to have given more definite information regarding certain matters than has been given. There are also instances where some readers would be better pleased if the author had expressed himself more decidedly with respect to the merits of some accepted theories and conventional practices which are discussed in the book.

No one else has, as yet, attempted to bring together so much material as is to be found in this work, and for this reason the book will prove especially valuable as a book of reference for the student, the physician, or the health officer. It is, moreover, written in a style which makes it easy and interesting reading for anyone wishing to inform himself regarding practical aspects of preventive medicine and hygiene.

A Pocket Surgery. By DUNCAN C. L. FITZ-WILLIAMS, C.M.G., M.D., Ch.M., F.R.C.S. (Edin. and Eng.). Fellow (Late President) of the Royal Medical Society of Edinburgh; Fellow of the Medical Society of London and Royal Society of Medicine; Surgeon in Charge of Out-Patients and Lecturer in Clinical and Operative Surgery, St. Mary's Hospital, London; Surgeon, Hospital for Sick Children, Paddington Green; Surgeon to Mount Vernon Hospital for Tuberculosis; Consulting Surgeon, Margaret Street Hospital for Consumption and Diseases of the Chest. Author of "A Manual of Operative Surgery," etc., etc. New York: Longmans, Green and Co.; London: Edward Arnold. 1921. (All rights reserved.)

"In the *Pocket Surgery* an attempt has been made to confine within a very small compass the whole range of examination surgery. Surgical textbooks usually begin small and end by being enormous—so enormous, indeed, as to be almost useless to the student from an examination point of view. The *Pocket Surgery* attempts to give all the necessary headings and only a very short account of the mere details which the student should have learned elsewhere. Surgery cannot be learned from a book; lectures, demonstrations, ward work, out-patient

work and, above all, experience—these are the teachers of surgery. Here we only try to supply the key to the cupboard in the student's brain, in which the mass of detail must be stored."—*From the Author's Preface.*

This *Pocket Surgery* is a small, red-covered book of 350 pages. It is well bound and well printed in small, clear type, on good, unglazed paper. It is not illustrated.

The reviewer has sincere doubts whether there is need of, or an excuse for, such a volume. If, however, such a need does exist, this volume fills it extremely well. It is very much better than volumes of similar size and purpose published in America, so far as the reviewer is acquainted with such books. As a quiz compend of surgery, from a British standpoint, the book may be recommended.

A Manual of Practical Anatomy. By THOMAS WALMSLEY, Professor of Anatomy, Queen's University, Belfast, Ireland. In Three Parts. London and New York: Longmans, Green and Company. 1921.

The first part of this admirable guide to the dissection of the human body has been favorably reviewed in the JOURNAL. The second part, dealing with the thorax and abdomen, is illustrated by a series of 82 excellently drawn text-figures. The anatomic descriptions are concise, the directions for dissecting clear. The work is a valuable teaching manual, whose completion will be awaited with expectancy and interest.

Army Anthropology. Volume XV. of Statistics of the Medical Department of the U. S. Army in the World War.

This is a compilation of statistics resulting from the medical examinations of the first million recruits. It is surprising how much of interest can be found in this study: For example, a comparison of the height-mean stature of the first million recruits, ages 21 to 30 years, inclusive, including white color, is 67.49 inches. These figures are practically the same as those of recruits in the Civil War. As is pointed out in comment upon this question, these figures would seem to show that the infusions into our population of large numbers of immigrants of low stature has had practically no effect upon the average height.

The relation of height and weight to the existence of various pathological conditions, such as asthma, defective teeth, adenoids and hypertrophied tonsils, is commented upon. It also developed that there is a relation between hypertrophy and excessive height.

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THE PROGRESS OF HOSPITAL STANDARDIZATION.

SOME idea of the progress which has been made in the direction of hospital standardization may be gained from a perusal of the report of the hospital conference held at the Clinical Congress of the American College of Surgeons on October 24, 1921.

Dr. Franklin Martin reported that "in 1918, of the 692 general hospitals of one hundred or more beds, in the United States and Canada, 89 met the standard; in 1919, 198; in 1920, 407, or 57 per cent.; and this year 568, of a total of 761 hospitals, or 74 per cent., meet the standard of the College."

The campaign for the standardization of hospitals arose in answer to the question whether hospitals were giving to the public which supports them the best possible service. As Dr. E. A. Codman, of Boston, pointed out some years ago, end-results are the true test of surgical efficiency.

At the conference held in Philadelphia last October, discussion centered around several questions in particular.

In regard to staff meetings, a number of speakers emphasized the necessity of regular meetings at which the results of the previous month's work should be thoroughly gone over.

Each department head should report, and in case of deaths, the attending physician should give an abstract of the case. It was suggested by a man, himself a hospital trustee, that boards of trustees should know more of hospital problems other than financial, and should occasionally meet the members of the staff.

Hospital records should be carefully kept, of course, but beyond everything, they should be honest.

The nursing problem was again considered. Dr. Charles Mayo advocated the two years' course, with a third and optional year for specialization. With this plan, Miss Mary Riddle, Superintendent of the Newton Hospital, Newton Lower Falls, Mass., was not in accord, maintaining that three years was none too long for the making of a nurse.

The conference, as a whole, showed the great interest in hospital standardization which is felt throughout the United States and Canada.

Standardization of hospitals means standardization of the work done therein. This applies chiefly to surgery, for in strictly medical cases, errors of diagnosis are less likely to be discovered, and the physician's mistakes do not confront the one who makes them as do the surgeon's. In short, the practice of surgery will have to conform to a certain standard of diagnosis, technic and judgment. This is as it should be, provided a surgeon's work is judged sympathetically by a jury of his peers. The spirit of helpful criticism necessary to the success of such a departure is the spirit which the Hospital Standardization Committee is endeavoring to develop. It was much in evidence, apparently, at the conference in Philadelphia.

CRITICISM OF MEDICAL SCHOOLS.

THE annual report of Dr. Nicholas Murray Butler, President of Columbia University, contains a serious criticism of medical teaching, both in relation to the expense involved and the departure from the earlier conception of the function of medical colleges. He predicts that if present methods continue, the public will not sustain these institutions. He characterizes medical teaching as the "spoiled child of education," and charges that medical education is about a half century behind other forms of higher instruction. His interpretation of this condition is that it is due to the intellectual isolation of the medical profession, for since the practitioner is so busy with the exacting details of his work, and his associations are very largely limited to his companions in the same calling, medical men become provincial.

One solution, according to Dr. Butler, will result from the immediate association of the medical school and university in order that teachers and students may come in daily contact with the workers in other fields. He suggests another

reform, which consists in limiting the curriculum to teaching the essentials of medicine and increasing the number of students so that the expensive equipment shall not be restricted to preparing a small number of students for practice. The latter part of his contention is obviously sound, and many students of medical pedagogy have publicly expressed the same opinion. Billings and Bevan, a year ago, brought this idea forcibly before the conference on medical education in Chicago, and the general response was quite in harmony with this opinion.

It has seemed to many that the recommendation for standardization has led to a competition among medical colleges with the purpose of trying to ascertain how far the mental capacity of students may be stretched to meet the exacting and comprehensive problems of special departments. Although some egotistic advertisers claim to be specialists in all departments of medicine, a sane man would not believe that even a well-equipped medical school could develop the mind of a student, or, indeed, that of any other person, so that he would be regarded as a specialist in even one or two departments of medicine through study covering a four-years course, even with a hospital year added. Undergraduate instruction in the specialties should be limited to an endeavor to give the student a general idea of the pathology met with in each particular field, and a familiarity with such therapeutic measures as every man in general practice may be called upon to employ.

Our medical schools should realize that there is a moral obligation to meet the needs of the public, and if the need is to be met, it must be through the training of practitioners of general medicine, as well as of specialists. To do this, the major effort should be to teach anatomy, physiology, ordinary biochemistry, pathology, pharmacology, general internal medicine, general surgery and *obstetrics*, and no man should be given a degree until he has first demonstrated reliable efficiency in these subjects *at the time of his graduation*. State examining boards are often reminded of the fact that an applicant cannot be expected to remember the underlying principles on which practice is founded. It is no unusual thing for a recent graduate to say that he was not interested in one subject, but that he had concentrated on others.

This does not mean that specialists should not be trained—far from it; but the faculty of a medical school may properly estimate the capacity of a student, and to those indicating aptitude for special study and training, suggest that, after having shown creditable proficiency in the fundamental sciences and understanding of the practical application of internal medicine, surgery and obstetrics, then, and only then, should they be encouraged to take up the study of a specialty.

If medical schools would resolutely adopt this policy the public would be the gainer, and specialties would not lack for devotees.

The profession as a whole appreciates the great service rendered by specialists. It is, however, possible that the exact science of the specialist has tended to obscure the glory of the man whose case cannot always be cured by science, but who must employ the art of medicine in the human problems of life. His judgment, understanding and faith may keep his patient well or, in some instances, he may have to carry on the work of alleviation where the specialist, with all his power for good, has been impotent.

Specialists are indispensable. The well-educated, honorable and judicious general practitioner is needed today as much as ever. Will our medical schools try to supply this latter type?

THE VALUE OF NECROPSIES.

WHILE there can be no doubt that in the majority of hospitals situated in the large medical centers there is an effort on the part of the staff to obtain necropsies, there is a sad lack of interest concerning this subject in many institutions and almost a total disregard for it among practitioners. There is no debate among the members of the medical profession as to the value of necropsies. All admit that our first real knowledge of disease dates from the time of Giovanni Battista Morgagni (1682–1771), Professor of Anatomy in Padua, the real founder of human pathology. It was he who first carefully compared the clinical aspects of disease with the anatomic findings in a large number of cases, and it is upon his work, and a continuation of it through the succeeding centuries, that our principles of diagnosis, prognosis and treatment are based. Anyone familiar with the historic development of our scientific knowledge of disease realizes that the pathologist, though not in contact with the living patient, has contributed his share toward the aim of all medical sciences,—the relief of human suffering.

Any physician who has taken the opportunity to correlate the clinical studies of a series of patients with the findings of the pathologist, readily admits the limits of the physician's ability to arrive at a correct diagnosis even when aided by the most modern methods. In patients where the diagnosis is apparently obvious it is surprising how often unlooked-for complications are found, though the primary diagnosis may be correct. Every autopsy teaches a lesson of some value. The physician who constantly has his clinical observations checked by the pathologist develops a judgment based on facts which are otherwise unobtainable, and hence is far better equipped to render patients intelligent

re and advice than the one who assumes that his diagnosis is always right, though unverified by necropsy. Other things being equal, it is doubtless true that the hospital which has the advantage of a large number of post-mortem examinations will have a staff of superior judgment and ability.

Granting that every member of the medical profession appreciates the importance of necropsies, it is a strange situation that most practitioners and many hospitals make little or no effort to obtain them. In a hospital with proper facilities there is no excuse for disregarding such an opportunity, while among physicians whose practice is chiefly concerned with patients in their own homes the difficulties are greater, though even here they are not insurmountable. If the physician is unable to do his own necropsy, he can easily obtain the services of a trained pathologist. The Harvard Medical School, for instance, will supply a pathologist to the physicians of Boston and immediate vicinity on request. If the members of the patient's family are unable to pay a reasonable fee for the performance of necropsy, the pathological department of this medical school will conduct the examination free of charge on recommendation of the attending physician.

It is perfectly true that many individuals hesitate to grant permission for necropsy upon the body of a relative, but a majority of persons have a most reasonable attitude if a simple, straightforward explanation is made them and the benefits of such an examination are emphasized. There are no mysterious methods of success in obtaining permission for a necropsy. There are, however, a few essentials relating to the attending physician which must be present before much success is obtained. He must *first* realize fully the great benefits of such an examination to the family of the patient, the physician, and society at large. *Second*, he must have an earnest desire to seek the truth concerning the cause of death, and a willingness to disregard the thought of possible embarrassment and undeserved criticism if his diagnosis does not coincide with the pathological findings. *Third*, he must be willing to take sufficient time, often from an already overcrowded life, to present the request to the relatives and to perform the autopsy or make arrangements whereby a trained pathologist may do it.

Sir James Mackenzie has repeatedly emphasized the unique and useful position which is occupied by the general practitioner, wherein he is able to observe the earliest symptoms of disease, and frequently has the opportunity of following the course of the disease over a considerable interval of time. The combination of such a period of observation, correlated with pathologic examinations, is accessible to all, and would add its share to the advancement of medical science.

NEWS ITEMS.

DR. HARRY N. ARCHIBALD, of Cheshire, is confined to the House of Mercy, Pittsfield, Mass., following an appendectomy.

THE January meeting of the Franklin District Medical Society was held at the Mansion House, Greenfield, Tuesday, January 10th, 1922, at 11 A.M.

Subject: Acute and Chronic Arthritis.

1. Etiology and Pathology of Acute and Chronic Arthritis—Dr. Edgar H. Hughes.

2. Treatment of Acute and Chronic Arthritis from a Medical Standpoint, together with the Prognosis—Dr. Henry A. Suitor.

3. Treatment of Acute and Chronic Arthritis from the Surgical and Orthopaedic Standpoint—Dr. Charles F. Canedy.

Mr. Macdonald was present and explained the Group Indemnity Policy approved by the Council November 9, 1921.

DR. J. H. MATHER, *Pres.*

DR. CHAS. MOLINE, *Sec.*

THE East Boston Medical Society held their annual dinner and election of officers on January 10, 1922, at a popular hotel in Boston. The following officers were elected: Dr. Robert Bonney, President; Dr. Richard Houghton, Vice-President; Dr. Enos Bowen, Secretary; Dr. A. L. McLaren, Treasurer; Dr. James H. Strong, Member of Executive Committee. All physicians who care to attend any of the meetings of the Society are cordially invited to attend.

E. E. BOWEN, *Secretary*.

INSPECTION OF SOUTH DEPARTMENT, BOSTON CITY HOSPITAL.—The trustees of the Boston City Hospital invite the medical profession and others who may be interested, to inspect the new isolation wards of the South Department, Wednesday, January 25, from 10 A.M. to 3 P.M.

WORCESTER STATE HOSPITAL MEETING.—At the bi-monthly staff luncheon held at the Worcester State Hospital, Dr. George A. Dix read a paper. His subject was, "The Time Has Come to Part with Many Things," and was largely on syphilis in its many manifestations. The paper was extremely interesting and was discussed by the staff members present.

LECTURE BY MR. ERNEST HAROLD BAYNES, RELATING TO VIVISECTION.—On Saturday evening, January 14, Mr. Ernest Harold Baynes delivered before the Æsculapian Club and guests, a lecture in defense of vivisection. This lecture is the one which Mr. Baynes is planning to give before lay audiences, and was given, as Mr. Baynes himself said, in order that the medical profession might help him by their criticisms. If one could judge from the applause and com-

ments heard after the meeting, that portion of the medical profession which attended the lecture had no comment to make, except in approval.

The lecture was illustrated by lantern slides and each point in the argument, as it was made, was well driven home. Mr. Baynes first explained his own position in the matter, and told how he had been led to investigate conditions in animal laboratories by the belief that they could not be as terrible as the antivivisectionists claimed. He spoke briefly of conditions in laboratories throughout the country, and then took up the refutation of the antivivisectionists' accusations. He analyzed the testimonials purporting to come from prominent men, both physicians and laymen, and showed that, certainly, in the most striking instances, these testimonials were either without foundation in fact, or were extracted from a context and given in such a way as to mislead the reader. He produced definite repudiations of these testimonials in a number of instances.

The affidavits collected by the antivivisectionists, in which were described the alleged conditions of bloody and wanton cruelty occurring daily in animal laboratories, were taken up. One of the most positive of these was shown to have been given by a woman who was employed as a cleaner in the Rockefeller Institute and who had endeavored to bribe other employees to make similar affidavits.

Mr. Baynes then took up the benefits which had accrued to animals themselves from animal experimentation and showed a number of pictures of sheep, swine and cattle suffering from various plagues.

He concluded his lecture by pointing out the importance of the menace of the antivivisectionists, urging the medical profession to do all in their power to help clear away the cloud of ignorance and misinformation by means of which the antivivisectionists were able to enlist the sympathy and financial aid of well-meaning but incredulous people.

MIDDLESEX SOUTH DISTRICT MEDICAL SOCIETY.—The regular midwinter meeting of the Society was held at the Boston Medical Library on Friday, January 20th, 1922, at 12 o'clock, noon.

Paper: Dr. Edwin H. Place spoke on the Diagnosis and Management of Diphtheria; and Dr. Joseph Garland described and then demonstrated the Schick Test. The meeting was then opened to general discussion. Lunch was served at 1.15 p.m.

WORCESTER DISTRICT MEDICAL SOCIETY.—The regular meeting of the Worcester District Medical Society was held at Red Men's Hall in Worcester at 4.15 p.m., January 11, 1922. President J. J. Goodwin, of Clinton, braved the worst storm of the season and presided, as usual.

Dr. A. J. A. Hamilton, of Boston, read a paper on "End-Results of Various Methods of

Treatment of Surgical Disease of the Stomach and Duodenum," which was illustrated with lantern slides. The paper was based on a questionnaire which he had sent to 100 of his operative cases in his private practice. His conclusions were that all chronic stomach diseases which show, by x-ray, deformity of the stomach, should be operated upon at once, because the cure was more certain and the patient at work much quicker than by medical treatment.

Dr. Lester C. Miller discussed the medical treatment of stomach ulcers. He said that the treatment was much the same as twenty years ago—largely rest and dietetic. He quoted Einhorn's series of 300 cases treated by duodenal feeding, and concluded his remarks by emphasizing the fact that no routine treatment was adapted to all cases, but that each individual should have treatment suitable to his needs.

The papers were discussed by Drs. Arthur Barnes, Frank W. George, R. W. Swann, and A. M. Shattuck.

On motion of Dr. A. M. Shattuck, a vote of thanks was given to Dr. Hamilton for his interesting paper.

The directors of the Fairlawn Hospital, a new hospital about to be opened by the Swedish residents of Worcester, have announced their plans for remodeling the buildings of the Norcross estate at Fairlawn. These plans call for a sixty-bed hospital and a nurses' home. A special maternity ward will be provided. One hundred thousand dollars are needed to complete the plans, of which fifty-one thousand have been secured.

BOSTON MEDICAL HISTORY CLUB.—The postponed annual meeting was held Tuesday, January 24, 1922, at 8.15 p.m.

Program:

"History of Medicine in Its Relation to the History of other Sciences."—George Sarton.

"Medical Magic in Frazer's 'Golden Bough.'"—Dr. Coriat.

"Protracted Pregnancies."—Mr. Alfred Ela.
EDW. C. STREETER, Sec.

WEEK'S DEATH RATE IN BOSTON.

DURING the week ending January 7, 1922, the number of deaths reported was 211 against 211 last year, with a rate of 14.40. There were 29 deaths under one year of age against 23 last year.

The number of cases of principal reportable diseases were: diphtheria, 48; scarlet fever, 47; measles, 72; whooping cough, 4; tuberculosis, 14. Included in the above, were the following cases of non-residents: diphtheria, 4; scarlet fever, 9; tuberculosis, 5;

Total deaths from these diseases were: diphtheria, 3; scarlet fever, 1; tuberculosis, 11. Included in the above, were the following cases of non-residents: diphtheria, 1; tuberculosis, 2.

Miscellany.

THE LEGISLATURE.

The following named members of the legislature have been appointed on the Committee on Public Health.

Senate: Pearson, of Middlesex; Hardy, of Worcester; Griswold, of Franklin and Hampshire, and Babb of Suffolk.

The House: Glazier, of Hudson; Ryder, of Middleborough; Hunnewell, of Boston; Early, of Newton; Abbott, of Andover; Hale, of Springfield; Bell, of Somerville; Kerr, of Lawrence; Bartlett, of Brockton; Kelleher, of Cambridge, and Cortanza, of Boston.

Members of the Society who desire to see the text of any bill can secure it by applying to a Senator or Representative.

If, however, a member may not find it convenient to secure an interview with his Representative, he can write to him; but the JOURNAL will cooperate and secure bills when requested.

ON January 4, Gov. Channing H. Cox addressed the Legislature. The following is a quotation from his address (Senate 1):

"In its welfare work, in its care of the unfortunate and the sick of body and mind, and in its endeavor to reduce human wastage, Massachusetts has made an enviable record. The progress made in this direction must be continued. In such endeavor the benefits cannot be measured in dollars and cents. The return is to be found in the satisfaction of relieving suffering and in the development and protection of strong men and women. We must never stop to balance dollars against the chance of relieving misery. The Commonwealth might well, however, increase its charges for certain special activities which benefit only particular individuals and corporations, so that their cost may be fully paid by the benefited parties and not from general taxation."

The prevention of mental disease was considered at length. In speaking of the hospitals for those suffering from mental diseases, he says:

"The great sums expended by the Commonwealth for the maintenance of these institutions emphasizes the fact that much is to be done in the field of practical mental hygiene to stop the increasing numbers for whom institutional care must otherwise be provided. It is an accepted fact that approximately one-half of all patients admitted to our State institutions are suffering from mental disorders that could have been prevented. Our efforts must be continued to overcome a hesitation to use our State hospitals,—a hesitation due in part to ignorance and in part to the continuing effect of old tradition. Every effort must be made to bring treat-

ment to bear upon the early stages of mental disorder, through a continued campaign of education and in trying to promote the best possible conditions in childhood for those who are handicapped either by mental defect or by nervous instability which may later lead to nervous and mental disorders. The Commonwealth has recognized the importance of a practical mental hygiene program, and has provided much legislation to make effective such a program.

"The State's program for the feeble-minded embraces the following factors:—

1. Identification.
2. Registration.
3. Education.
4. Supervision.
5. Segregation.

"The establishment of school clinics,—the Department of Mental Diseases cooperating with the Department of Education,—whereby school children three or more years backward are examined, represents an extraordinary achievement, there being no known similar provision anywhere else in the world. These clinics have been made constructive from the start, the purpose of the examination being not to discredit the backward child in any way, but rather to ascertain exactly what school progress he is making; to insure that he is not worked beyond his capacity, and that not too much is expected of him; and, so far as possible, to ascertain any special reasons for his lack of development.

"Approximately 3,000 children have been examined since the organization of the clinics in the spring of 1921. The cordial cooperation with which this work has been received is noticeable; both the parents and the school authorities are using results of the examinations to do more for the children than has ever been done before. As a result of this work specially unstable children may receive adequate supervision and care.

"The continuing census of the feeble-minded, which the Department of Mental Diseases has under way, has far-reaching possibilities: the regular checking up of the lists will show those defectives who are not capable of community life and also those of the hereditary grade who are likely to propagate their kind and who need institutional segregation. It will also show the well-developed defectives who are conducting themselves properly and who can safely be trusted in the community.

"There are now large numbers of feeble-minded patients of our schools for the feeble-minded living in the community under slight supervision, practically all behaving themselves and the majority supporting themselves. Recent legislation provides definitely for community supervision of the feeble-minded, and with provisions for the necessary machinery to carry on this work a much larger number can be cared for in the community, and room made available

for those requiring, temporarily at least, institutional care. The schools for the feeble-minded should, in the future, function very largely in giving a period of training to large numbers and then return this group to the community to earn their own living. It is interesting to note that a group of 93 from one of our schools for the feeble-minded were supervised in the community last year and earned, collectively, \$102,000.

"There is great need for extension of this principle of community supervision as far as possible instead of expensive institutional support and the large expenditures for the construction of buildings (new construction costs approximately \$1,500 per bed; annual maintenance, at least \$300 per patient). The importance of the feeble-minded problem now warrants the recommendation that there be created with the Department of Mental Diseases a Division for the Feeble-minded.

"The State hospital system conducts well-organized out-patient clinics. This work should be continued and encouraged. A practical program in mental hygiene looks forward to co-operating with the courts in the examination of any one where there is the least suspicion of mental disease or mental defect. This should be encouraged, to the end that all courts having to do with juvenile delinquency could be furnished with a psychiatric report.

"The Psychopathic Hospital provides a unit of the general hospital type for the reception of early cases of mental disorder. This is a very noticeable tendency to make use of such small units by individuals who, either themselves or their relatives, are unwilling otherwise to use the State hospital. To take advantage of this principle there is legislation available for the organization of small psychopathic hospital units.

"Massachusetts has gone far in providing care and treatment of the insane and mentally defective. The work is being well done to-day and large appropriations are necessary for its continuance. The only escape from constantly increasing expense lies in the adoption of more preventive measures. I urge the continuance of the support given last year to a program of prevention to offset the growing and increasing demands for institutions to care for those whose mental disorders could have been prevented, and to the development of all means to care for the individual, especially the feeble-minded, in the community under supervision rather than the more expensive plan of establishing new hospital facilities."

THE Governor commends in general the provisions and administration of the Workmen's Compensation Act, but suggests certain changes for the benefit of the families of those who die as a result of injuries received.

In regard to habit-forming drugs, the Gov-

ernor recommends that Congress be memorialized in favor of the passage of legislation which will make the Massachusetts standard the national standard.

Among the matters to be considered by the Legislature are the recommendations of the State Department of Public Health (House 180). Of general interest is their recommendation of acceptance of the provisions of the so-called Sheppard-Towner bill, "for the Promotion of the Welfare and Hygiene of Maternity and Infancy."

House 181 embodies their recommendation. Section 1 accepts the act. The other sections are as follows:

SECTION 2. The department of public health is hereby directed to coöperate with the federal board of maternity and infant hygiene in the administration of the provisions of the act of congress as aforesaid, and to do all things necessary to entitle the commonwealth to receive all the benefits thereof.

SECTION 3. The treasurer and receiver general is hereby designated as the custodian of all the funds allotted to the commonwealth from the appropriation made by said act of congress, and he shall receive and provide for the proper custody and disbursement of the same in accordance with the said act.

SECTION 4. The federal funds so received shall be paid out in accordance with the provisions of the aforesaid act upon requisition of the department of public health as reimbursement for expenditures already incurred.

SECTION 5. This act shall take effect upon its passage.

The other recommendations of the Department of Public Health deal with the methods of analyzing liquors, the publication of information relative to foods, the examination of vinegar, the examination of plumbers, the purchase of additional land for the Westfield Sanatorium and further sanitary improvement of the Neponset River.

On petition of Philip Castleman, a resolve is introduced authorizing the Department of Public Health to carry on a rat survey in co-operation with the United States Public Health Service, with the view to the prevention of the introduction and spread of bubonic plague and for the aforesaid purpose the sum of dollars is hereby appropriated.

The Department of Mental Diseases (House 115) looks forward to the opening of the School for the Feeble-Minded at Belchertown, the buildings for which are nearing completion.

They recommend further that the parole privileges for inmates of schools for the feeble-minded be extended, and that more continuous supervision of the feeble-minded be provided (House 119).

On the petition of D. A. Warren, an act (House 196) is proposed which would compel the school committee of every town, under direction of the Department of Mental Diseases,

to ascertain annually the number of children of school age three years or more retarded in mental development; and compelling each town in which there are ten or more such children to provide special classes suitable for their instruction, and forbidding the placing of children of retarded mental development, who are public charges, in towns where such classes are not provided.

The Special Commission, appointed last May, have reported relative to the establishing and procuring quarters for defective delinquents (Senate 57). They recommend the segregation of defective delinquents at the State Farm in Bridgewater, where they can receive remedial and custodial rather than penal treatment. Such steps are in line with the recommendations of the Governor.

On the petition of Geo. W. Galvin, a bill has been introduced which would allow any inmate of an insane hospital the privilege of sending any uncensored letters which the patient saw fit to write.

The Board of Dental Examiners recommend an adequate salary for the Secretary of their board, an annual registration of dentists, reciprocity with other states in the registration of dentists, and further recommend that the widow, executor or administrator of a registered dentist who has died, or the wife of one who is incapacitated, may continue his business under a registered dentist.

On petition of Joseph Homer, a bill has been introduced (House 310) which would compel the Board of Dental Examiners to keep a public record of their proceedings and a registry of all registered dentists.

Workmen's Compensation.

Various bills in reference to workmen's compensation have been introduced.

Those of interest to the medical profession deal with medical fees. Two introduced on petition of Robert Robinson and D. V. McGowan, respectively, seek to establish the "basis upon which medical fees shall be approved." Both bills would add to the present law a provision that the fees approved shall be "not less than the average minimum fee in the locality or district in which the service is rendered."

The McGowan bill is as follows:

"During the first two weeks after the injury, and if the employee is not immediately incapacitated thereby from earning full wages, then from the time of such incapacity and *in all cases where medical treatment will minimize the disability or aid in the restoration of the injured to working capacity, for a longer period, in the discretion of the industrial accident board*, the insurer shall furnish adequate and reasonable medical and hospital services, and medicines if needed. The employee may select a physician other than the one provided by the insurer, and the reasonable cost of these services shall be paid by the insurer, subject to

approval of the department. *Such approval shall be based upon the allowance of not less than the average minimum fee in the locality or district in which the service is rendered.* Such approval shall be granted only if the department finds that the employee was so treated by such physician, and in all cases that the services were adequate and reasonable, and the charges reasonable. If any case where the department is of opinion that the fitting of the employee with an artificial eye or limb, or other mechanical appliance, will promote his restoration to industry, it may order that he be provided with such an artificial eye, limb, or appliance, at the expense of the insurer."

The words in italics in the first sentence are those substituted for these words in the present law, "in unusual cases in the discretion of the department for a longer period."

The later italicized words are those added in both the McGowan and Robinson bills.

The provision of the McGowan bill would eliminate the objectionable clauses of the present law limiting the payment for professional care, in ordinary cases, to two weeks, and would do away with the constant dispute as to what constitutes an "unusual" case.

Another bill introduced on petition of Joseph Zinskin deals with hearings on physicians' fees. It reads as follows:

"Fees of attorneys and physicians and charges of hospitals for services under this chapter shall be subject to the approval of the department. If the insurer and any physician or hospital, or the employee and any attorney, fail to agree as to the amount to be paid for such services, either party may notify the department, which may thereupon assign the case for hearing by a member thereof. The member shall file his decision with the department and such decision shall be reviewable by the industrial accident board, as provided by Section eight. If no review is claimed from the decision of the member within seven days, such decision shall be enforceable in accordance with Section eleven."

Vaccination.

The Joint Committee favor a bill (House 495) to extend compulsory vaccination to the private schools, and to make the exemption certificate more than a farce. The bill is similar to that advocated for several years. It reads as follows:

"A minor under fourteen years of age who has not been vaccinated shall not be admitted to a public or private school except upon presentation of a certificate signed by a registered physician that the physician has, at the time of giving the certificate, personally examined the child and that he is of the opinion that the physical condition of the minor under fourteen years of age is such that his health will be endangered by vaccination. The said cer-

tificate shall state the reasons for the opinion of the physician who signs it, and shall be valid only for one year from the date thereof."

Further clauses guard against too early return to school after exposure to contagious disease.

The opponents of vaccination have introduced two bills, one sponsored by the Medical Liberty League, permitting any unvaccinated child to attend school if a parent or guardian signs a certificate stating that he, or she, is opposed to vaccination.

The provision in this bill, that the school board may exclude an unvaccinated child during an epidemic, nullifies the aim of the medical profession to eliminate an unvaccinated class in the community.

Another bill proposes that damages may be recovered from cities and towns for injuries caused by compulsory vaccination. It reads as follows:

"If a person who is vaccinated under the direction of the Board of Health of a city or town sustain bodily injury by reason of the negligence or unskilfulness of the physician or nurse employed by the Board of Health of such city or town in inoculating such person or attending him at the time of inoculation, or because the foreign substance with which he was inoculated was not pure, such person so injured may recover damages therefor from such city or town in an action of tort."

The possibilities for litigation under such a bill would be boundless. Those opposed to vaccination hold that any vaccination inflicts bodily injury and that all vaccine is impure.

The Department of Education recommends (House 99) legislation regulating the medical inspection of school children. Their report says:

"The law at present requires that 'every child returning to school without a certificate from the board of health after absence on account of illness or from unknown cause must be referred to the school physician for examination and diagnosis.' To comply with this law is found to be practically impossible in most towns and cities of the State. The proposed amendment limits the requirement to cases of pupils returning to school after suffering from infectious or contagious disease.

"The present law also requires that every child in school who shows signs of ill health or of suffering from infectious or contagious disease shall be referred to the school physician unless at once excluded from the school by the teacher. In view of the recent legislation providing for school nurses, it seems desirable that the school nurse should share with the school physician in handling this phase of medical inspection work."

The bill that is proposed (House 101) provides for this. It is as follows:

"The school committee shall cause to be referred to a school physician for examination and diagnosis every child returning to school without a certificate from the board of health after absence on account of illness from infectious or contagious disease. Every child attending school who shows signs of ill health or of suffering from infectious or contagious disease, shall be referred to the school nurse or the school physician, unless at once excluded from the school by the teacher. But in the case of schools remotely situated, the committee may make such other arrangements as may best accomplish the purposes of this section."

Physical Examination of School Children.

A bill has been introduced on petition of William Albert McCoy which aims to nullify the present law by the substitution of the word "may" for the word "shall." The bill is as follows (House 601):

"An Act relative to the physical examination of pupils in the Public Schools.

"Section fifty-seven of Chapter seventy-one of the General Laws is hereby amended by striking out the word "shall" on line 1 and inserting in place thereof the word "may"; and by striking out the words "and shall require a physical record of each child to be kept in such form as the department may prescribe," commencing on line 6 and ending on line 8, and inserting in place thereof the following:—but no child shall be required to undress, either partially or entirely, for the purpose of being so tested or examined, nor shall any child be so tested or examined, whose parent or guardian files with the teacher, his or her written objection to having his or her child or ward so tested or examined,—so as to read as follows:

"Section 57. The committee may cause every child in the public schools to be separately and carefully tested and examined at least once in every school year to ascertain defects in sight or hearing, and other physical defects tending to prevent his receiving the full benefit of his school work, or requiring a modification of the same in order to prevent injury to the child or to secure the best educational results, but no child shall be required to undress, either partially or entirely, for the purpose of being so tested or examined, nor shall any child be so tested or examined, whose parent or guardian files with the teacher, his or her written objection to having his or her child or ward tested or examined."

Medical Registration.

Legislation concerning, directly and indirectly, the Board of Registration in Medicine promises, this year, to be a matter of great importance.

The present Secretary of the Board will retire in March, after many years of most valuable service. A bill has been introduced (House 779), on petition of S. A. Gilbert Cox, to make the Secretary of the Board a lawyer instead of

a doctor, and to make him a member of the board.

A bill referred from the last session will be considered this year, permitting the appointment of more than three members of the board of seven from one school of medicine. Originally intended to compel the recognition of homeopaths, eclectics and allopaths, this provision of the bill has outlived its purpose. The Joint Committee representing the Massachusetts Medical and the Massachusetts Homeopathic Medical Societies favor the abolition of the requirement. The Eclectic Society, at its last meeting several years ago, had dwindled to an attendance of fifteen. The medical profession ask for a board which will test rigidly the knowledge of those applying for registration; they would impose no restriction whatever upon the methods of treating disease adopted by honorable and well-trained physicians. With this point made absolutely clear, the profession will oppose to the utmost any proposition for the establishment of special boards for the examination and registration of those who wish to practise osteopathy, chiropractic or any other cult. We ask simply that all applicants for a license to practise medicine in any form, prove that they have an adequate grounding in the fundamental sciences, chief of which are anatomy, physiology and pathology.

On this ground the Joint Committee will oppose the bill introduced to establish a special chiropractic board which there is reason to believe will, this year, be advocated very strenuously.

A bill has been introduced by the Committee on Education of the Massachusetts Medical Society, and which is endorsed by the deans of Harvard, Tufts, and Boston University Medical Schools, which would require for registration a year's internship after graduation and which would require two years of college training, or its equivalent, before the study of medicine is undertaken. The bill will be favored by the Joint Committee. It reads thus:

"Applications for registration as qualified physicians, signed and sworn to by the applicants, shall be made upon blanks furnished by the board of registration in medicine, herein and in sections three to twenty-three, inclusive, called the board. Each applicant who shall furnish the board with satisfactory proof that he is twenty-one or over, and of good moral character, and that he has creditably served as House Officer or Interne for a period of not less than one year in a general hospital, which hospital had a daily average of not less than twenty-five patients during the service of such applicant, and that he has received the degree of doctor of medicine, or its equivalent, from a legally chartered medical school having the power to confer degrees in medicine, which gives a full four years' course of instruction

of not less than thirty-two weeks in each year, and which requires of each student who enters the said medical school after the first day of September, 1924, for the purpose of securing the degree of doctor of medicine, or its equivalent, evidence of completion of pre-medical study as follows: Graduation from a standard high or secondary school and satisfactory completion of at least two years of study in a college of liberal arts or scientific institute or school recognized as reputable by the department of education of this Commonwealth, which college of liberal arts, institute or school, has required not less than nine hundred and sixty hours of work during the said two years. An applicant who offers evidence of pre-medical study under the provisions of this section, must have devoted not less than one hundred and ninety-two hours to the study of chemistry, one hundred and twenty-eight hours to the study of physics, one hundred and twenty-eight hours to the study of biology, and ninety-six hours to the study of English composition and literature, shall, upon payment of twenty-five dollars, be examined, and, if found qualified by the board, be registered as a qualified physician and entitled to a certificate in testimony thereof, signed by the chairman and secretary. An applicant failing to pass an examination satisfactory to the board shall be entitled within one year thereafter to a re-examination at a meeting of the board called for the examination of applicants, upon payment of a further fee of three dollars; but two such re-examinations shall exhaust his privilege under his original application. The board, after hearing, may revoke any certificate issued by it and cancel the registration of any physician convicted of a felony; or, after hearing, may revoke any certificate issued by it and cancel for a period not exceeding one year, the registration of any physician who has been shown at such hearing to have been guilty of gross and confirmed use of alcohol in any of its forms while engaged in the practice of his profession, or of the use of narcotic drugs in any way other than for therapeutic purposes; or of publishing or causing to be published, or of distributing or causing to be distributed, any literature contrary to section twenty-nine of chapter two hundred and seventy-two; or of acting as principal or assistant in the carrying on the practice of medicine by any unregistered person or by any person convicted of the illegal practice of medicine or by any registered physician whose license has been revoked either permanently or temporarily; or of aiding or abetting in any attempt to secure registration either for himself or another, by fraud; or in connection with his practice, of defrauding or attempting to defraud any person. The board may subsequently, but not earlier than one year thereafter, reissue any certificate formerly issued by it or issue a new certificate, and register anew

any physician whose certificate was revoked and whose registration was cancelled. Nothing in this act shall be construed as discriminating against any applicant who was able to comply with the provisions of section two of chapter 112 of the General Laws, previous to the passage of this act.

A bill has been introduced and will be favored by the Joint Committee, to provide for the registration of medical students for the limited practice of medicine.

SECTION 1. An applicant for limited registration under this act who shall furnish the Board of Registration in Medicine with satisfactory proof that he is twenty years of age or over and of good moral character, that he is enrolled and has creditably completed not less than two years of study in a legally chartered medical school in good standing, which medical school has the power to grant degrees in medicine, and that he has been assigned to the care and observation of persons needing medical service, by a teacher in a medical school as defined in this act, may upon payment of a fee of one dollar be registered by said Board as an assistant in medicine with the right to sign birth certificates and perform such service as may be delegated to him by his instructor under the following restrictions:

SECTION 2. Such registered assistant in medicine may not by himself alone use or apply any narcotic drug as defined in the Statutes of this Commonwealth relating to the possession, application or distribution of narcotic drugs; he may not, except in the presence of and under the supervision of the instructor in the medical school of which he is enrolled, advise or employ any treatment for diseased conditions, nor perform any operation which is or may be carried out by the use of any instruments other than those which may be necessary in dealing with normal cases or those used in the examination of patients for the purpose of making a diagnosis; he may not sign certificates of death.

SECTION 3. Nothing in this act shall be construed as preventing the employment of any measure for the relief of suffering or prevention of death in an emergency whenever it may be found to be impossible to secure the services of a registered physician.

The purpose of this bill is simply to provide in a useful manner for the education of medical students under the supervision of their instructors.

Bills for the Registration of X-ray Technicians and bills for the registration of medicines and other measures of importance will be presented and discussed in later issues of the JOURNAL.

A MEETING of the Worcester North District Medical Society was held at the Fav Club, Fitchburg, Tuesday, January 24th, 1922, at 4 P.M. The speaker was Dr. John T. Bottomley, of Boston. Subject: "Jaundice."

The Massachusetts Medical Society

ON TRANSFERRING FROM ONE DISTRICT TO ANOTHER.

January 13, 1922.

A. Wilson Atwood, M.D.,

Secretary of the Worcester District Medical Society.

Dear Doctor Atwood:

I am glad you have written me about the procedure of transfer from one district medical society to another, for there has long been a good deal of misunderstanding about this matter. We look to our by-laws, the rules of the game we are playing, for directions when in doubt. Chapter III, Sections 2 and 3, cover this case. You will note in Section 2, that the membership of each district society "shall consist only of fellows, retired fellows, and honorary fellows, having legal residences within the boundaries of the district, except in cases decided otherwise by vote of the council." The next section shows what is to be done by fellows who live in one district and wish to be members of some other district, having their places of practice in other than the district in which they reside. Therefore it is plain that if a fellow moves from one district to another he automatically transfers his membership from the district where he resided to the one where he has moved. All he has to do is to get into touch with the secretary of the district into which he has moved and let the secretary know that he has arrived. The fellow or the secretary will notify the secretary or librarian of the parent society and the transfer will be made in the Directory of the Society. The meaning of the word "Reside" was settled by the council in 1876 as meaning "Legal residence." This is in accord with the laws of Massachusetts in determining the very important questions that constantly arise as to what is a person's legal residence. As I understand the matter, a person must have lived in a definite town or city for the term of six months and, further, must have signified that he considers that town or city his legal residence before he is reckoned as a legal resident of that city or town. When he has acquired a residence he is assessed as a citizen and his name is placed on the voting list and the law regards him as residing in that place and in no other. Under our by-laws, a fellow may live and reside in one town and belong to a district society of which that town is not a component part, if he so elects, but he is required to take the steps outlined in Section 3 of Chapter III and also receive the vote of the council before he can belong to another district. Under all other conditions, he is listed where he has a legal residence, so far as that can be determined.

Trusting that I have made the matter clear,
I am,

Faithfully yours,
WALTER L. BURRAGE, *Secretary*.

EXTRACT FROM CHAPTER III OF THE BY-LAWS OF
THE MASSACHUSETTS MEDICAL SOCIETY.

Section 2. The membership of each district society shall consist only of fellows, retired fellows, and honorary fellows, having legal residences within the boundaries of the district, except in cases decided otherwise by vote of the council.

Section 3. Any fellow wishing to change his membership from one district society to another without a change of legal residence must petition the council in writing to grant such a change, stating the reasons therefor, and send such petition to the committee on membership and finance, which shall consider the petition, shall consult with the officers of the two districts concerned in the change, and shall report recommendations to the council. The council shall decide by vote whether or not such petitions shall be granted.

Correspondence.

SCHICK TESTING IN THE BOSTON PUBLIC SCHOOLS.

Mr. Editor:

Your editorial of December 29th, 1921, here quoted,

"One may be pardoned for suggesting that since vaccination is urged for protection against smallpox, that the Schick test should be used for determining the susceptibility to diphtheria, and also the employment of toxin-antitoxin as a preventive for the non-immune. Even if the city is not prepared to undertake this work, advice to parents is timely.

"Diphtheria kills more children in Massachusetts than smallpox, and yet, under present well-known methods, is almost as controllable. Massachusetts had 885 cases of diphtheria reported during October of this year, and the number increased to 1185 in November. If these were smallpox figures, there would be a general alarm. The mortality percentage in diphtheria is often higher than is found in smallpox epidemics of mild type."

suggests this statement from the Director of Medical Inspection, Boston Public Schools:

Impressed with the advantages of the Schick test for the prevention of diphtheria, the Director of Medical Inspection recommended its adoption in two districts. The School Committee approved this recommendation in November, 1921.

Dr. Solomon H. Rubin, school physician in the William L. Garrison and George Putnam Districts (enrollment about 2,700 pupils), was assigned to this work. Suggestions for the cards and record blanks were taken from the New York system.

Local physicians were informed of the proposed work and its advantages, and 1,500 circular letters were sent, through the children, to the parents, advising them in regard to the Schick test, and requesting consent for its application to their children.

A mothers' meeting was held in the William L. Garrison school at which Dr. Edwin L. Place, Superintendent, South Department, Boston City Hospital, described for their information the Schick test and its advantages. Dr. Ceconi, representing Board of Health, cooperated.

The following is a report on the work in the William L. Garrison District:

Date on which Schick testing commenced, Nov. 1, 1921	
Number of pupils in district	1,149
(permission requested from parents of each child)	
Number of pupils whose parents gave permission for performance of test	531
Number of pupils Schick tested	531
Number positive	373
Number negative	148
Number combined	9
Number pseudo	1
Total	531

Toxin-antitoxin inoculations were given only to a small number of the positive children, principally to determine the reaction of the first inoculation.

Number of pupils given first inoculation	145
Number of pupils given second inoculation	131
Number of pupils absent from school on day of second inoculation	14

The third inoculation was not given owing to the vacation intervening.

Arrangements have been made with the Master of the George Putnam District for the application of the Schick test to children bringing written permission from their parents or guardians. A teachers' meeting was held on December 21st, 1921. There was a discussion of the work, and it will undoubtedly receive the full cooperation of the teachers.

In the William L. Garrison District, less than 50% of the parents gave their consent. This may have been due to several factors: the indifference on the part of the parents, the fear of consequences. Some parents who were either unacquainted with the work, or who feared the consequences, are now willing to have their children Schick tested. The wishes of the parents have always been respected. In a few instances, parents have been unwilling to permit the second inoculation and in some cases they would not permit immunization after the Schick test had been performed.

There have been very few instances of illness resulting from immunization by toxin-antitoxin. Headache, malaise, fever, local redness, and induration at the point of inoculation, also pain in the immunized arm occurred in a few cases. Toxin-antitoxin has been given, with no after-effects, to children showing organic lesions of the heart. It has been demonstrated that the younger the child, the more likely he is to endure without consequences the toxin-antitoxin.

The fact that there are 373 positive reactions against 148 negative in a small group of 531 children indicates the value of Schick testing.

The cases of diphtheria that have been reported in this district were cases that if Schick tested would show a positive reaction.

Some local physicians have advised parents against the Schick test. On the contrary, a large number of physicians whose children attend the Garrison school have requested that their children not only be Schick tested but that they be immunized, a manifestation of confidence in Schick immunization.

The Director of Medical Inspection believes that the introduction of the Schick test to the profession of Boston will, in a few years, practically stamp out diphtheria. He questions the advisability of the school authorities adopting this test in all of the schools, but its success in one district will demonstrate to the public its importance in the prevention of diphtheria.

After the family physician has used this method for several years on children of pre-school age, few cases will be discovered in our classrooms.

The benefit to the public will repay the School Committee for the time and money expended in this preliminary testing.

WILLIAM H. DEVINE, M.D.,
*Director of Medical Inspection,
Boston Public Schools.*

NOTICES.

THE MASSACHUSETTS MEDICAL SOCIETY.—A stated meeting of the Council will be held in John Ware Hall, Boston Medical Library, Wednesday, February 1, 1922, at 12 o'clock, noon.

Business:

1. Report of Committee of Arrangements for annual meeting, June 13 and 14.
2. Report of Committee on Membership and Finance, on membership.
3. Reports of Committees on Petitions for restoration to the privileges of fellowship and presentation of new petitions.
4. Appointment of delegates to the annual meetings of the following state medical societies: Maine, New Hampshire, Connecticut, Rhode Island; also to the House of Delegates of the American Medical Association; also to the conferences of that association on Health and Public Instruction and Medical Education and Hospitals at Chicago in March, 1922.
5. Report of Treasurer and Auditing Committee.
6. Report of Committee on Membership and Finance, on finance, with Budget for 1922.
7. Reports of special committees.
8. Incidental business.

WALTER L. BURRAGE, *Secretary.*

BOSTON, JANUARY 25, 1922.

Councilors are reminded to sign the attendance book before the meeting.

The Cotting Lunch will be served in the Supper Room immediately after the meeting.

THE NORFOLK DISTRICT MEDICAL SOCIETY.—A regular meeting of the Society will be held at Tufts College Medical School, Tuesday, January 31, at 8:15 P.M. Business:—Communications: Hemiplegia in Syphilis, Abraham Myerson, M.D.; Demonstration of Intracranial Hemorrhages, Timothy Leary, M.D.; Discussion: Edward N. Libby, M.D.

Refreshments after the meeting.

BRADFORD KENT, M.D., *Secretary.*
798 Blue Hill Avenue, Dorchester.

THE NEW ENGLAND PEDIATRIC SOCIETY

The seventy-second meeting of the New England Pediatric Society will be held at the Boston Medical Library on Friday, February 10, 1922, at 8:15 P.M.

The following papers will be read:

1. President's Address.
Richard M. Smith, M.D., Boston, Mass.
2. Is there More than One Kind of Rickets?
Edwards A. Park, M.D., New Haven, Conn.
(Discussed by F. R. Ober, M.D., Boston.)
3. The Experimental Feeding of a Vitamin-Deficient Diet, with Especial Reference to Scurvy.
L. W. Smith, M.D., Boston.

Light refreshments will be served after the meeting.

HARVARD MEDICAL SCHOOL RESEARCH CLUB.—At the meeting of the Research Club of the Harvard Medical School on Friday, January 27th, in the Amphitheatre in Building A, at twelve-thirty o'clock, Dr. F. H. Verhoeff will talk on "Hypersensitiveness to Lens Protein, and Its Practical Importance."

THE MORTON HOSPITAL, TAUNTON, MASS., has arranged for monthly clinical meetings. Reports of cases will be presented and will be discussed by the Staff.

JOSEPH L. MURPHY, M.D.

MASSACHUSETTS MEDICO-LEGAL SOCIETY.—Winter meeting, Wednesday, February 1, 1922. Program: 10:30 A.M., North End Mortuary, North Grove Street, Boston. Demonstration, medico-legal autopsy, Dr. George B. Megrath; 2:00 P.M., Sprague Hall, S. The Fenway, Boston. Regular meeting. Communications: 1—Technique of a Medico-Legal Investigation, Dr. George B. Megrath, lecture; 2—Special Technique for Study of Pelvic Organs, Dr. F. H. Baker; 3—The Chemist's Part, Dr. William Boos.

J. C. FRASER, Weymouth, *President.*

ERNEST L. HUNT, Worcester, *Recording Secretary.*

BOOKS FOR REVIEW.

THE JOURNAL acknowledges the receipt of the following books for review:—

Ephraim McDowell, "Father of Ovariectomy." By Schachner. Published by J. B. Lippincott Co., Philadelphia and London. 331 Pages. Price \$5.00.

Exophthalmic Goitre. By Walter Edmunds. Published by Baillière, Tindall and Cox, London. 36 Pages. Price 3/6.

Pulmonary Tuberculosis. By Sir James K. Fowler. Published by Macmillan & Co., Ltd., London. 284 Pages.

Domiciliary Treatment of Tuberculosis. By F. Rufenacht Walters. Published by Messrs. William Wood & Co., New York, N. Y. 290 Pages. Price \$4.00.

The Organs of Internal Secretion. By Ivo Geikie Cobb. Published by Messrs. William Wood & Co., New York, N. Y.

A Form of Record for Hospital Social Work. By Gertrude S. Farmer. Published by J. B. Lippincott Company, Philadelphia, London and Montreal. 81 Pages. Price \$1.50.

The Glands Regulating Personality. By Louis Berman. Published by The Macmillan Company, New York, N. Y. 300 Pages.

Health Education and the Nutrition Class. By Hunt, Johnson & Lincoln. Published by E. P. Dutton & Co., New York, N. Y. 281 Pages. Price \$3.50.

Synopsis of Midwifery. By Aleck W. Bourne. Second Edition. Published by Messrs. William Wood & Co., New York, N. Y. 211 Pages. Price \$3.50.

HEARINGS BEFORE THE COMMITTEE ON PUBLIC HEALTH are assigned as follows:

February 6—10:30 A.M., Senate Bill 130, House Bill 495. Petitions of the Medical Liberty League for legislation relating to vaccination and school attendance. Petitions of Dr. John W. Bartol that vaccination of certain children in private schools be required.

February 1, House Bill, 497. Petition of William Parker Cooke relative to safeguarding the health of children by regulating the sale of candy.

January 31—10:30 A.M., House Bill 101. Bill relating to medical inspection in public schools.

The article on "The Value of Necropsies," which was prepared by an editorial writer and which appears in this issue, should be read by every practitioner. It may influence physicians to use any judicious means which may, through this method, aid in promoting the study of disease.

In order that the argument and facts may be available, the JOURNAL will have on hand reprints which will be distributed on request. In some instances this leaflet might be left with a family and the information conveyed could be followed by personal advice by the physician.

The Boston Medical and Surgical Journal

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Address.

THE BARONESS VON OLNHAUSEN.*

BY ALFRED WORCESTER, M.D., WALTHAM, MASS.

NURSING is often spoken of as a new profession. So it is. But it is an old art. In this scientific age the importance of the art of nursing, and of the art of medical practice as well, is in danger of being forgotten. This is regrettable, but it is only the natural result of the wonderful advances of medical science during the last half century.

In my boyhood, I had the great advantage of the friendship of several unusually able family physicians. They knew nothing of the causation of diseases, and so almost nothing of their prevention.

Measured by present standards, these old physicians I knew and loved would be considered as ignorant practitioners. Well, what of it? What if they did know nothing of disease-producing germs and modern laboratory methods of diagnosis, they knew vastly more about their patients, and so far more of the healing art than is generally known today,—more's the pity.

They learned this art by apprenticeship and by experience—the only way the healing or any other art can be learned.

But tonight I am supposed to be speaking of nursing, to nurses and their friends. And I

have called attention to the change in the practice of medicine in order to explain the even greater change from old-time to modern nursing.

As the assistants of physicians and surgeons, nurses nowadays must know something of medical science. The more they know the better. But for their patients' sakes, it is even more important that they should be accomplished in the *Art of Nursing*.

Of course, there ought not to be any conflict between the nurse's devotion to her patient and her loyalty to the doctor. But I am afraid modern nurses are sometimes bothered by this dual duty: the old-time nurses never were. Their attitude to the doctor was generally tolerant, but not seldom it was that of ill-concealed hostility. Their whole devotion was to their patients. With them nursing was an art, not a science.

It is a misfortune that so little attention has been paid to what was excellent in the service of the old-time nurses. Undeserved ridicule and even obloquy has been heaped upon them as a class.

In the larger pauper hospitals of this country there may have been Sairy Gamps. It is true that in the Bellevue Hospital of New York sixty years ago the nurses were degraded women. But they were no worse than some of the training school nurses I have seen in one of our large city hospitals not many years ago. And yet in both cases such nurses were the rare exceptions.

The great majority of the old-timers were honest, hard-working, kind-hearted, sensible

* An address to the graduating class of the Waltham Training School for Nurses, June 25, 1919.

women. Older they all were than our modern white-capped nurses, and far more "sot," but not less worthy of their patients' loving gratitude.

In a previous paper I tried to portray one of these old family nurses, Mary K. Green, who is still gratefully remembered in this neighborhood. Tonight I shall try to describe another, a public service nurse, whose fame for that reason was far greater.

Mary Phinney was born just north of the Waltham-Lexington line February 3, 1818. She went to the old Kite End School, and afterwards to the Smith Academy in Waltham. Like Florence Nightingale, she knew every flower and insect and bird that could be found on the farm and in the woods. Like her, too, she was the first aid nurse for injured animals and neighbors. She lived until past thirty in the midst of plenty. But after her father's death, when his farm had to be sold and she was obliged to earn her own living, her artistic talent served her well. She became a designer of calicoes in a New Hampshire cotton factory. There she met a group of German republicans who, after the unsuccessful revolution in 1848, had been forced to leave their country. Among them was the Baron von Olnhausen, whom she married in 1858. Theodore Parker said he was one of the most learned men he ever met. And Dr. Henry Ingersoll Bowditch described him as of serene and charming nature. He lived only two years after their marriage. And again Mary Phinney, now the Baroness von Olnhausen, was thrown upon her own resources. For two years she slaved for her poor brother and his sickly family on an Illinois farm. In 1862, she volunteered as one of Dorothy Dix's war nurses. That was the beginning of her glorious career.

In *Adventures of An Army Nurse*, her nephew, James Phinney Munroe, gives us extracts from her diary and letters which vividly describe the tremendous obstacles that she surmounted. The hostility of the surgeons, the dishonesty and the inefficiency as well as the enmity of the hospital stewards, the awful lack of proper nourishment and materials would have conquered a less heroic soul.

Americans had profited nothing from the victory of Miss Nightingale over similar obstacles in the Crimean War. And it must also be confessed that not for ten years after the success of the Nightingale School of Nursing in England did we even attempt in this country the proper training of nurses. Undoubtedly in those years, our distrust of Great Britain prevented us from following Florence Nightingale's brilliant leadership. And when we now read in her biography that, while the cause of our Union was in greatest peril, she, in the employ of the British war office, was planning the nursing service for the British forces in their projected attack on our Canadian border, we

realize that our distrust was fully warranted. But after the successful Arbitration of the Alabama claims, and the resumption of friendly relations with our mother country, we began, in the early seventies, to follow Miss Nightingale's advice in starting our schools for nurses.

In this great reform the Baroness von Olnhausen had no part. In fact, she was displaced by it. When I was in college and first visited the Massachusetts General Hospital, as was the custom of students who were intending to enter the medical school, she was the superintendent of nurses. Miss Linda Richards, her successor, gives in her *Reminiscences* a graphic description of the nursing conditions there when she took charge. One illustration will suffice, at any rate for our hospital staff and trustees who now demand several months' longer terms of service for our head nurses. Under the Baroness, the head nurses served only for one day. Then they went back into the diet kitchens for a day; then to the washing and rolling of bandages; the next day they served as night watchers; then as juniors in the wards; and, after a week of such rotation, they had another twenty-four hours of head nurseship. No wonder there was confusion instead of effective team work. And yet, as I hope to show, Mary Phinney was one of the greatest nurses America has ever produced. She asked nothing of her subordinates that she herself would not willingly have done. In her estimate, all the different services were of equal importance for the welfare of her patients, which was ever her first and only consideration. Indeed, her devotion was so intense that it is safe to say no nurse who has ever lived, not even Florence Nightingale herself, was more beloved by her patients.

By contrasting the great services of these two noble women, the difference between old-time and modern nursing is made plain. Miss Nightingale was not only far better educated, she was also one of the world's greatest organizers. She first brought the British war office to adopt her reorganization of army nursing; then she reformed the pauper hospitals of England, and finally the public hospitals of the whole civilized world, by the influence of the nursing school she established and guided at St. Thomas's. The secret of her great power in effecting these reforms is to be found in the fact that, before beginning her life work, she herself was thoroughly trained in the nursing schools of the Roman Catholics in Paris and Bruges and also in the Lutheran School at Kaiserswerth.

Mary Phinney, on the other hand, was absolutely untrained, and she was also wholly ignorant of the history of nursing and of the great traditions of the European schools. She was not an organizer. And she was a poor executive. Not disciplined herself, she could not discipline others. Only when surrounded by willing workers, somewhat like herself in

their devotion, was any team work possible for her.

As her biographer well says of that stage in her career, "her breezy cheeriness, her kind words to every patient, her untiring efforts to keep them buoyed up and entertained, were as conspicuous as was her scrupulous attention to cleanliness and her wonderful skill in the treatment of wounds." That is a good description of excellent nursing, whether of the past or of the present. No wonder she was beloved by her patients.

But you will now be asking, how did she acquire this wonderful skill of hand, and this power to bring her heart into such effective action? This is the answer: she worked with tremendous will at every task she undertook; she aimed high—at perfection. Without thought of self, she gave forth her best; and the best of every woman is her motherliness.

When she began her Army Nursing in the Mansion House at Alexandria no room was provided for her, and only occasionally could she find a chance to sleep on the floor of another nurse's chamber. Dorothy Dix's volunteer nurses, women of distinctly better class, were not wanted by the surgeons. They tried in every way to freeze them out. But her good heart and untiring zeal soon won their respect, and in six months she was trusted to put up in splints even the worst compound fractures. Indeed, she had this to do for one of the surgeons who came back wounded. He demanded that she should do it, and his surgeon comrades looked on admiringly. In one of her letters she speaks of the young Major Henry L. Higginson as one of her patients. Often days went by with no visits from any surgeon to her ward. Before her first year was passed she nearly died of epidemic dysentery, but by September of 1863 she was again on duty as chief nurse of an Army Hospital at Morehead City, N. C. Here, besides the old obstacles of insufficient supplies, she had the refugee Negroes to contend with. In the following year came the yellow fever of which the surgeon-in-chief died, in spite of her unremitting care. Soon she, too, was stricken and nearly died. But as soon as able she returned to her post.

"Two hundred wounded just arrived," she writes in her diary, "and I the only wound dresser in the ward." And in a letter to her friends she wrote: "Perhaps you will be glad to know that the medical director of the Department of North Carolina sent me word that his nine surgeons, after examining those wounds, said they had never seen wounds so well dressed and such bad wounds so soon getting well; and for himself he said I was the best wound-dresser in the country." And later she writes: "We have not lost a man, though we had such terrible cases."

No wonder that the chief surgeon's testimonial was heartily endorsed by the Medical

Director. This is what he said: "Not one of the nurses whom I have known or heard of is better entitled to eminent and substantial notice than is Mrs. Mary von Olnhausen of Lexington—Her whole soul has been in the work. She very early acquired a marvellous dexterity in the management of the wounded. Thus, with her wonderful physical endurance, she was able to do more good than any nurse I ever knew. Soldiers who owe their lives to her care and skilful attention are scattered, now, over nearly all the Northern States. They will remember her with gratitude. I presume that is all she will wish for." The surgeon was right in his presumption. For, as he said, she was ambitious for neither fame or notoriety. And, as soon as the war was over, back she went to the Illinois farm to drudge for her poor brother and his now motherless children. This she did for five years.

But when the Franco-Prussian War began in 1870, she seemed to hear from afar the cries of the wounded. Go she must, and armed with highest credentials from our Governor and Surgeon-General, and with strongest possible recommendations from the American Association for Relief of Misery of Battle Fields (the precursor of our American Red Cross), Mary von Olnhausen, now fifty-two years old, went to Germany. It must be remembered that fifty years ago American as well as English sympathies were almost entirely with Prussia. Louis Napoleon was our *bête noir*.

Most unfortunately she lost her trunk and her credentials, and so for several months she could not find work or even get near the front. A less dauntless soul would have given up in despair. But, for her, obstacles were always surmountable. And soon her diary tells us of hard journeys in army wagons in Château Thierry, Rheims, Neaux Lagny and Epernay, Corbeil and Orleans. How familiar sound these places now and how familiar, too, her descriptions of war destructions! Unable at first to speak either German or French, crowded out by the Catholic sisters or Protestant deaconesses, and even by the English nurses, it was only when she chanced upon the Knights of St. John—of the old order of Knights Hospitalers—that she found work in the Hospice at Vendôme. There for two months she had her hands full. Besides the wounded, there were typhoid and smallpox cases to care for. And worst of all, before the patients were fit to leave their beds, came the orders to move them back into Germany, as the army was evacuating France. That was a terrible journey—and after it Mary von Olnhausen's war service was ended. The Iron Cross and the Order of Merit which she won, and the testimonials given her by the German war office, were not rated then as now. After her two years' stay with her husband's sister in their ancestral Saxon home, she came back to America, our most honored

war nurse. Then it was that for a year or two she had charge of the Nursing Service in the Massachusetts General Hospital, which I have already described.

For several years afterwards she was the Superintendent of a Maternity Asylum on Staten Island. That was a happier and more successful service. But she finally came into conflict with the managers, and her nursing career was finished.

She then, in her indomitable independence, was unwilling to accept even the hospitality of her near relatives, and began working at embroidery. Again her artistic talent served her in good stead. For in this, as in everything else, she succeeded. Her work was exquisite, and she was most happy in it until she died of an apoplexy, in Boston, April 12, 1902.

Her body in its flag-draped coffin lies buried in Mount Auburn. But nurses and all who pray for the advance of the Art of Nursing never ought to forget the great soul of Mary Phinney, the Baroness von Olnhausen.

The New England Surgical Society.

RECURRENT INGUINAL HERNIA.

BY RALPH W. FRENCH, M.D., F.A.C.S., FALL RIVER, MASS.

MUCH has been written on the subject of herniotomy and many methods varying in detail have been described, all designed to cure the existing hernia and prevent a recurrence. This paper is designed to point out the usual sites of recurrence after operation for inguinal hernia and to emphasize the steps in the operation which will best fortify these locations.

Andrews¹ states that at least one in every fifteen or twenty of all males in every community is ineligible, by having a hernia, for service in the army, navy, police or fire department. The frequency with which hernia occurs in normal individuals may also be indicated by Lauffer's² report, that in examining a large number of men for factory work, when a physical examination was required, three per cent. of those offering themselves for work had a well developed hernia and that fourteen per cent. had an incipient hernia. Ninety-two per cent. were indirect and the other eight were direct. Nearly twice as many of these were on the right side as on the left side.

It is significant that more cases present themselves for operative treatment during the years of active work, that is between the ages of twenty and fifty. With the adoption of the Bassini operation, published in 1886, the results of hernia operations became very much better, and since then the Bassini operation, with or without modifications, has been used extensively. Although the modifications have been numer-

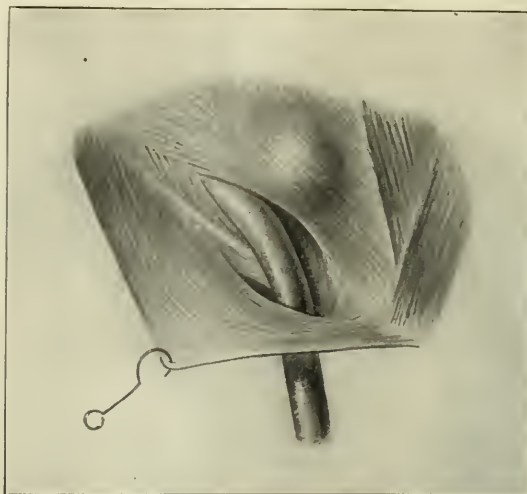


FIG. 1. Represents a recurrent direct hernia which may result from too tight sutures between the internal oblique muscle and Poupart's ligament.



FIG. 2. Shows the result of failure to place the first stitch between the internal and Poupart's ligament sufficiently low.



FIG. 3. Represents a recurrence occasionally seen through the internal ring.

ous, none has altered the underlying principles of removing the sac, obliterating the tract and restoring the layers of the abdominal wall to approach the normal.

The regions in which a recurrence is most likely to appear are shown in the accompanying drawings. Figure I represents a recurrent, direct hernia which may result from too tight sutures between the conjoined tendon or internal oblique and Poupart's ligament. Figure II shows the result of failure to place the first stitch between the internal oblique and Poupart's ligament low enough. And Figure III represents a recurrence occasionally seen through the internal ring.

Masson³ reports less than one per cent. recurrences at the Mayo Clinic in over seven thousand cases. Coley⁴ reports 0.57 per cent. recurrences in oblique inguinal hernias in male children, 0.15 per cent. in female children, and 3.5 per cent. in adults. In the direct variety he reports no recurrences in thirty-three cases. Other figures vary from one per cent. to five per cent. recurrences for all types of inguinal hernias.

Bloodgood,⁵ in the *Johns Hopkins Hospital Reports*, studied 500 post-operative cases of hernia and gave as the chief cause of recurrence the obliteration of the conjoined tendon. This emphasizes the fact that the function of the sutures should be to bring the tissues into approximation for union without strangulation and should not take any mechanical strain which the tissues themselves are not capable of holding. The point is perhaps more graphically expressed by Andrews when he queries, "Do we have to use a steel hawser to hitch a horse to a post, or can we hitch a horse to a post with a cobweb?" If this rule were strictly adhered to, it would seem that the objections to the Bassini operation made by some, that the tension of the conjoined tendon to Poupart's ligament causes pressure atrophy, would be obviated. And the possibility of the conjoined tendon splitting and resulting in a direct hernia would be almost negligible.

In looking up the results obtained in 300 inguinal hernia cases which were operated upon at the Truesdale Clinic more than six months ago, I found that there was a recurrence of five, or 1.7 per cent. Three of the recurrences were in cases that had a direct hernia originally and the recurrence was of the direct type. The other two were originally indirect and in one the recurrence was direct and in the other indirect.

Several causes of recurrence, other than violence soon after operation, have been generally discussed. Sepsis, which is considered by most writers as a negligible factor, may be of more importance than we realize. Sepsis of some degree can occur in a wound while betraying very little evidence of its presence and will often result in the yielding of sutures. And

here I wish to reiterate the often made plea for the gentle handling of tissues in this operation when performed under a general anesthetic. Trauma lessens the resistance to infection, and the possibility of an accumulation of serum under the skin is greater if there is much trauma. A small amount of serum under a scar should be considered as a low grade of sepsis. Imperfect hemostasis may account for such an accumulation of serum. And as this condition affords an excellent culture medium, no wound should be closed until hemostasis is complete, if the best results are to be expected.

Another cause of recurrence may be attributed to nerve injury with resulting atrophy of the tissues. It is not uncommon to find that the recurrent hernia is a direct one when the first hernia was indirect. This is usually associated with an atrophied condition of the internal oblique which may be due to nerve injury or more probably to too much tension from sutures. Failure to suture the conjoined tendon low enough to Poupart's ligament so that no opening is left behind the external ring is another source of recurrence.

A saddle bag, bilocular or pantaloony hernia may be present, which represents a combined hernia. If this fact is not recognized and the sac appearing as an indirect hernia only is removed, it is obvious that trouble may be expected later from the other part of the hernia. For if the internal oblique is not strong and provision has not been made to fortify the area against a direct hernia, a bulging through Hesselbach's triangle may be expected within a few months.

Having isolated an indirect hernial sac, how often does the surgeon examine to ascertain the possible presence of a beginning direct hernia? It is fair to say that this simple precaution is seldom taken. When one is found it is usually possible, according to Torek,⁶ to convert the direct sac into an indirect one by pushing the deep epigastric vessels toward the middle line while pulling the peritoneum outward. In this way the cut edges of the sac may then be closed by a running stitch as in any direct hernia. When a small, direct hernia also exists at the time of operation for a large indirect hernia, the direct one is likely to appear later; for if much tension is added to the layers employed in the Bassini operation, under the cord, the direct hernia is soon liable to make itself evident. Therefore, why not know, during the operation, that a combined hernia exists, and fortify this region against it?

Special difficulties are encountered in cases where the tissues of the internal oblique are thin, soft and relaxed. This is often found to be the condition when a truss has been worn for many years. Another problem is encountered when the internal ring has stretched

downward so that it lies directly in back of the external ring. The sliding hernia also presents difficulties because of the unusually large internal ring with the surrounding tissues greatly stretched. In these operations an additional support may be obtained by suturing a piece of the rectus fascia across the relaxed tissues.

Usually the more times that a hernia has been operated upon the greater are the difficulties encountered. Among elderly men whose tissues are thin and relaxed it becomes a necessity in rare instances to remove the testicle and cord entirely in order to effect a cure. In such instances closure of the wound is simple; for the wall is closed as in any incisional hernia.

Operations for a recurrent inguinal hernia must of necessity differ considerably, depending upon the particular type of recurrence. Any method would be ideal as Andrews states¹ which supplies a well nourished flap of such ample size that it can be brought over the weak spot without tension. It is interesting to note the unanimity with which this idea has been felt: and has been manifested by the large number of ingenious methods which have been suggested for the purpose.

The essentials in an operation for recurrent hernia are the same as for the original hernia, that is, the removal of the sac which obliterates the tract and the restoration of the layers to approach the normal. In order to have reasonable assurance of success all scar tissue should be removed, the fascia laid bare of fat and mobilized, dissecting it sufficiently to allow adequate apposition with Poupart's ligament without tension. This same technique should be carried out in dealing with the lower border of the internal oblique. The sac should then be isolated and removed completely. The nerves in the region of the inguinal canal, if found intact, should be preserved with care. Then free use must be made of the adjacent muscles and fascia to repair the deficient portions of the abdominal wall.

Transplants or the introduction of foreign substances such as silver wire are rarely if ever needed and have not been used in any of our cases. The Bassini technique can usually be carried out, though occasionally it is necessary to leave the cord outside of the external oblique, as in the Halstead operation. Whenever it is possible we prefer the modification of the Bassini suggested by Andrews,² which differs from it in that the upper segment of the flap of the external oblique aponeurosis is drawn down behind the spermatic cord while the lower flap is drawn up in front of it, the two flaps then lapping or imbricating, the cord is included between them.

Occasionally it may be found to be advantageous to flex the thigh during the sewing-up

process, as recently suggested by Lyle,³ and to keep the thighs flexed during the first week of convalescence. This procedure relaxes Poupart's ligament, the conjoined tendon and the adjacent tissues thereby insuring added relaxation during the healing process.

We allow most of our cases, whether of the recurrent type or not, to get up on the tenth or twelfth day. The large or difficult hernias are kept in bed for two weeks. Light work is permitted in four to six weeks and heavy work in three to four months.

SUMMARY.

The causes of the recurrence of an inguinal hernia may be summarized as follows: (1) tension of the sutures; (2) impaired innervation; (3) infection; (4) failure to approximate the internal oblique and Poupart's ligament sufficiently low; (5) leaving the internal ring too large; (6) failure to recognize a direct hernia during an operation for the indirect type.

Each case of recurrent hernia presents its own problem. Its cure depends upon the appropriate utilization of structures available.

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- ⁵ Bloodgood: *Johns Hopkins Hosp. Reports*, v, 17, p. 277.
- ⁶ Torek: *Am. Surg.*, 1919, xix, 658.
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DISCUSSION OF DR. FRENCH'S PAPER ON "RECURRENT INGUINAL HERNIA."

DR. DANIEL F. JONES, Boston: This seems to me to be a very important paper and of great interest to all of us. I have done none but the recurrent herniae at the Massachusetts General Hospital for some years. This has led me to believe that a hernia operation is a serious one from the point of view of the patient. Not only has he wasted much time if the operation is a failure, and that is important to most patients, but more important still is the fact that the tissue making up the canal is so injured by the operation or by sepsis that it is impossible to repair it properly.

Dr. French has mentioned many important reasons for recurrences but did not, I think, mention the fact that a direct hernia is frequently overlooked and occasionally an attempt made to cure an indirect, when the lesion is a direct hernia. I have come to this conclusion, because so many of the recurrent herniae which were indirect, are direct.

Failure to close the transversalis fascia close about the cord as pointed out by Moscovitz is another reason for recurrence. Too vigorous an effort to get all the sac separates the fibres of the transversalis fascia and leaves a weak place when the sac is tied off. An effort should be made to catch the fibres of the transversalis fascia and pull them together when the sac is tied off.

Any bulging of the canal below the deep epigastric artery should be remedied by a plication of the transversalis fascia; even with marked bulging it is, I believe, unnecessary to open the peritoneum.

Another important point in repairing a hernia is to suture the conjoined tendon at the lowest possible

point on Poupart's ligament. This helps to keep the area flat and to prevent any bulging which gives a hernia a start.

The operation for hernia is much more serious than it is generally considered. When we consider that many are done on working men who are having the operation done at considerable expense of time, every effort should be made to give them the best possible result. The more difficult types should be done by the more experienced surgeons.

DR. CHARLES A. PORTER, Boston: There is a joke that Dr. ——— of ——— found that the senior men had the most recurrences and the younger men the least.

DR. SAMUEL W. GODDARD, Brockton: I would like to emphasize another point, and that is, the importance of getting equal tension on all sutures, so that when pressure is exerted from within, the pressure may come against them all as a whole, equally, and not on a few.

DR. DAVID CREEVER, Boston: I have listened with the greatest interest to Dr. French's paper and I think he is to be congratulated on his excellent statistics from the Fall River Clinic. His cases include some operated on as recently as six months ago, and while I do not wish to be pessimistic, I must say that few of the recurrences that have come under my observation have occurred within six months, and I suppose therefore that there are bound to be more among his cases later on. Most of the recurrences in my own experience have come after two or three years.

Especial emphasis has been placed both by Dr. French and Dr. Jones on the importance of painstaking care in technique of operating and of a knowledge of regional anatomy, and I am glad to take this opportunity, as I wished to also at the close of Dr. Lahey's paper, reporting 20-odd per cent. of accidental sections of the musculospiral nerve in dissections of the neck, from the City Hospital Clinic, to make a strong plea for the necessity of an accurate familiarity with anatomy. There has been no more harmful doctrine promulgated by a certain group of surgeons than that a knowledge of anatomy is relatively unimportant in surgery, and that a surgeon can learn his anatomy at the operating table. Doubtless many of these cases of accidental nerve injury were at the hands of junior men, and while some such injuries are inevitable the liability to them is much increased if the operator is not absolutely familiar with the anatomy involved. In the same way, recurrences after hernia operations may sometimes be explained on similar grounds. But you cannot make a silk purse out of a sow's ear, and if you are not dealing with good, sound tissues, the percentage of good results will be much smaller, and I have no doubt that in most of the hernias that Dr. French and Dr. Truesdale have operated upon, with subsequent recurrence, there has been little to work with.

Going back to the conception of anatomy as the great underlying factor in the success of operations for hernia, the operator should have very definite principles and ideals for every step of the operation: For instance, in the treatment of the sac in indirect hernia he should not ligate or cut away the sac until he has carried out the dissection of its neck to the level of the deep epigastric artery. The vessel should be clearly demonstrated, and the neck of the sac transfixed and ligated at that level at least, or higher, if possible. The artery lies just extraperitoneally, and after the ligation and removal of the sac, there should not even be a dimple left, if it could be looked at from the intra-abdominal aspect.

I agree with Dr. Jones about the folly of invariably opening the sac in direct hernias. Too often

the sac is operated and it is found on attempting suture that there is really not sac enough to cut away. What has been done, therefore, is practically useless, and some form of plication is the best thing to do. Incidentally, the presence of the urinary bladder should be suspected in every direct hernia and it is occasionally accidentally opened, and this accident would be avoided if the peritoneal protrusion is plicated rather than opened.

Concerning the transplantation of the cord outside the external oblique and the covering of the cord with the lower segment of the aponeurosis, that seems to me unnecessary. It is apt to be too much compressed by this flap and a wide imbrication and adhesion of the apposed surfaces is not obtained unless the lower flap is smoothly sutured to the upper segment of the aponeurosis, whose edge has been brought down to Poupart's ligament, without effort to cover in the cord. The latter will lie just as comfortably between the layers of the superficial fascia, and I believe that it is just as safe there from trauma as it would be in its deeper position. I think this is the operation of choice in primary operations for hernia when you are dealing with poor tissues, and the best operation when you are dealing with most recurrent hernias.

DR. RALPH W. FRENCH, Fall River: I am glad Dr. Jones brought out the point about the transversalis fascia which will add security to the procedure. Herniotomy is a most interesting subject. Each recurrent hernia is a little different from the last one, and this fact makes each case a separate interesting problem.

Original Article.

FRACTURE AND DISLOCATION OF THE CERVICAL VERTEBRÆ WITHOUT PARALYSIS. REPORT OF A CASE.

By WILLIS E. HARTSHORN, M.D., NEW HAVEN, CONN.

INJURIES to the cervical vertebrae are of comparatively frequent occurrence. They result fatally in a rather large percentage of the cases. Owing to the fact that the spinal canal in the cervical region is somewhat larger than in other portions of the column, there is a greater range of mobility to the cord in this region. It is for this reason that a certain number of these cases, even when associated with fracture and dislocation of the bony framework, do not cause the death of the patient. Occasionally, comparatively few symptoms suggesting pressure on the cord are present, at least in the earlier stages following injury.

A certain similarity exists between fractures of the skull and fractures of the vertebrae. Both the brain and the spinal cord are encased in a bony, protective framework and constitute essential parts of the same system.

Broadly speaking, two main divisions may be considered: the type with paralysis and the type without paralysis.

Injuries to the spinal cord might be classed as follows: (1) Concussion. Associated with this may be a temporary paralysis. (2) Trauma, with intraneural or spinal hemorrhages. In



FIG 1



FIG. 2



FIG. 4



FIG. 4



FIG. 4

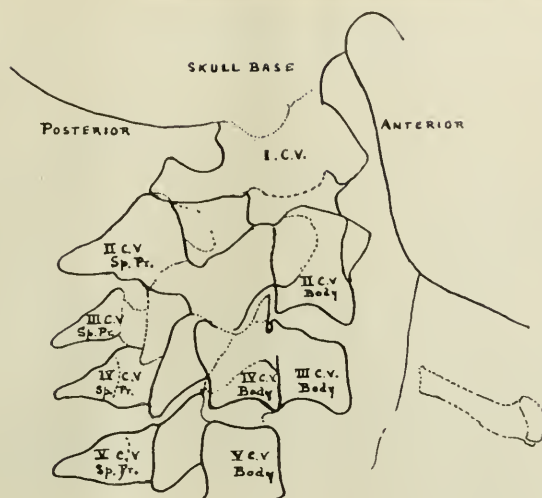


FIG. 3

this case the paralysis may be present for a considerable period in certain groups of muscles, and gradually disappear. (3) Injuries to the cord from fragments of the bony framework, with resulting pressure symptoms or laceration of the cord with destruction of tissue. (4) Pressure on the cord due to dislocation of the vertebrae without fracture. (5) Fracture and dislocation of the vertebrae without injury to the cord. (6) Compression frac-

tures of the bodies of the vertebrae. Any of these lesions may, if recovery takes place, present a later stage associated with painful neuralgias due to pressure from scars or callus formation and to actual deformities which have been typed under the general heading, "Kummel's Disease," and may present themselves as an actual kyphosis at the focus of injury to the bodies of the vertebrae.

The prognosis depends upon the degree of paralysis. If this is extensive, even with operative interference the outlook is very poor. If not extensive, recovery is more probable. Removal of bony fragments pressing on the cord is always advisable when moderate grades of paralysis are present. If dislocation alone is noted, without fracture, but with paralysis of greater or less degree, it is advisable to attempt extension of a rather forcible character by manipulation. A number of cases have been reported in which reduction has been readily accomplished without accident. The greatest care must be exercised while making the attempt, and all unnecessary trauma avoided. The attendant risks should be carefully explained to the patient.

The following case, from the writer's service at the New Haven Hospital, is presented as it combines the rather unusual features of a severe fracture and dislocation, without paralysis.

Name—E. M. Age—20. Admission Number—63136. Occupation—Soldier. Admitted August 11th, 1917. Discharged November 2nd, 1917. Diagnosis—Comminuted fracture of the second and third cervical vertebrae. Anterior dislocation of the first, second and third. Complaint—Multiple contusions of head, neck and left shoulder. Present Illness—Patient was hit by locomotive while walking on railroad tracks. Was brought to hospital in deep shock.

Physical Examination: Head—There are lacerated wounds of the scalp over the parietal and occipital region. No depression fracture noted. Eyes are normal, respond to light and accommodation. Jaws are intact. Uvula is in midline. Cervical Region—Swollen and painful, posteriorly. Marked deformity. Thorax—Clavicles are intact. No fractures of the ribs. No injuries to lungs. Right Upper Extremity—Normal movements. Sensory reactions undisturbed. Left Upper Extremity—Very marked swelling over deltoid region, with severe lacerations. Patient is able to move arm to moderate degree. Rotation is without pain. Abduction limited to 90°. No crepitus. Suggests hematoma beneath skin. Head of humerus apparently in position. Extremity is not paralyzed. Abdomen—No distention: no rigidity: reflexes undisturbed. Right Lower Extremity—No paralysis. Left Lower Extremity—No paralysis.



FIG. 5

August 16th, 1917.—No paralysis of extremities. A number of small vesicles on the chin suggest atrophic changes. Pupils are equal and respond to light and accommodation. Sphincters intact. Marked fullness over cervical region posteriorly. Head lies in same axis as trunk.

Dr. Max Mailhouse, Neurologist, August 18, 1917.—Apparently no paralysis in right shoulder muscles, arm, forearm or hand. Muscles that elevate shoulder have lost power on left side. Pronounced herpetic eruption on neck. Sympathetic reacts well on both sides. Too high for sympathetic involvement. No involvement of central canal. Can move lower extremities. Plantar reflexes present, but not lively. Muscle sense normal. Knee-jerks present, but not lively. Achilles-jerk present on both sides. No incontinence. Abdominal reflexes present. Better on right than on left. Takes a good deal of force to bring them out. Sensations normal here. Grip good in both hands.

August 26th, 1917.—No paralysis. On palpation, the deformity in the posterior cervical region is not marked. September 9th, 1917.—Tender point over mid-cervical spine, but no swelling. No paralysis. Motion of left shoulder gradually returning. September 14th, 1917.—Patient is able to sit up on back-rest. November 2nd, 1917.—Discharged. Has been up and around the ward for several weeks. Can walk without difficulty. Still has some paresis of left deltoid, with atrophy. Neck not absolutely rigid. Wears brace for neck.

REPORT OF X-RAY EXAMINATIONS.

August 15th, 1917.—No dislocation of the head of the humerus. There is, however, separation of the left clavicular-acromion juncture. August 16th, 1917.—No dislocation of the head of the left humerus. Forward displacement of the atlas. Forward displacement and fracture of the second and third cervical vertebrae. The fracture is semi-longitudinal, apparently, through the arches of the vertebrae and also through the laminae. The spinous processes are approximately in position. October 24th, 1917.—X-rays taken as the patient was about to be discharged, show no change in the last examination. Detailed structure is perhaps a little clearer. Figures one and two show radiographs. Figure three shows x-ray tracing.

Treatment—Advisability of forcible extension considered by consultants, but discarded as dangerous. Moderate traction applied in order to secure proper splinting of head and neck. Extension carried over head of bed. Moderate rigidity of head and neck secured by sandbags. On leaving bed, application of mechanical support, as noted in Figures four and five.

Six months after discharge the patient reported for examination, with the following findings: No paralysis; no secondary neuralgias; marked stiffness of neck.

Medical Progress.

PROGRESS IN SURGERY.

By EDWARD H. RISLEY, M.D., WATERTOWN, ME.

LILIENTHAL describes, in *Annals of Surgery* for September, 1921, his extrapleural resection and plastic operation for carcinoma of the oesophagus.

This is an entirely new operative procedure of a decidedly major character and has as a part of its technic the introduction of a rubber tube reinforced with a large skin flap to replace the resected diseased area.

The article is well illustrated with x-ray photographs of a successful case. It also contains the histories of four other cases operated on by this method.

The author concludes from his experience that transpleural resection of the oesophagus has a forbidding mortality; that fatal infection follows the primary opening of the oesophagus within the mediastinum; that it is feasible to make an extra-pleural exposure of the posterior mediastinum large enough to permit the operator to see clearly and to work safely with both hands in the wound; that resection of the oesophagus in the posterior mediastinum can be done by dividing the operation into two stages; at the first the oesophagus is freed from its attachments and the mediastinum is sealed; at the second, ten to fourteen days later, the resection is performed.

The article contains a complete bibliography on this subject.

HIGH TRACHEOTOMY AND OTHER ERRORS THE CHIEF CAUSES OF CHRONIC LARYNGEAL STENOSIS.

JACKSON, CHEVALIER, (*Surgery, Gynecology and Obstetrics*, May, 1921) writes as follows:

1. The most frequent cause of chronic laryngeal stenosis is high tracheotomy.

2. While in a given case no one has any right to say that the operation that saved that patient's life was an unjustifiable one; yet, equally rapid methods being available, high tracheotomy should not be taught.

3. The classic distinction between a high and low tracheotomy with reference to the isthmus of the thyroid gland is a relic of the days when too much respect was had for the thyroid gland, or at least for its isthmus, and the distinction should be abandoned. The vitally important matter of where the trachea should be incised should not depend upon the negligible isthmus. There should be taught only one tracheotomy and that should be low.

4. The trachea should always be incised lower than the first ring except in those rare cases in which laryngoptosis renders this impossible without entering the anterior mediastinum.

5. The cricoid cartilage should never be cut unless laryngoptosis places all the rings of the trachea below the upper border of the manu-

brium, which would require entering the mediastinum if the rule were to be followed.

6. The tracheotomy causes contributing to chronic laryngeal stenosis are:

- a. High tracheotomy.
- b. Hasty operation.
- c. Attempts at general anaesthesia.
- d. Cutting of the cricoid cartilage.
- e. Hacking the trachea by several incisions instead of one.
- f. Denuding the tracheal cartilages of perichondrium with resultant necrosis.
- g. Suturing the wound.
- h. Prolonged wearing of a cannula that is of improper size, shape, or material, such as rubber or aluminum, or one with a fenestra, or one without a pilot.
- i. Neglect of proper after-care. The keynote of the after-care should be that it is a plumber's job; the "pipes," natural and instrumental, must at all times be kept clear.

7. If in an emergency a high incision of the trachea has been made, a cannula should not be worn in it. As soon as the patient's breathing has been resumed a low incision should be made and the cannula should be inserted therein.

8. Going deeper, the fundamental cause of so many cases of chronic laryngeal stenosis lies in the faulty teaching in the surgical textbooks. The eminent surgeons who write textbooks would not do a tracheotomy through the larynx to avoid the isthmus of the thyroid gland, or because of haste; but eminent surgeons are not often at hand when emergency tracheotomies are required. These operations are usually postponed until respiration has ceased. If not already stopped the practitioner promptly stops it by attempting to give a general anaesthetic.

SURGICAL APPROACH TO THE SPHENO-PALATINE GANGLION.

Frazier in *Annals of Surgery* for September, 1921, describes an ingenious and new approach to the sphenopalatine ganglion.

The steps of the operation are as follows:

1. The incision has been designed with due regard for its cosmetic effect and to avoid important branches of the facial nerve. There are three limbs, one straight, in the direction of the zygoma, and two curved, following the lines of the supra- and infra-orbital ridges, with careful apposition of the margins of the wound the healed scar is quite inconspicuous. The branches to the orbicularis palpebrarum and the occipitofrontalis have not been disturbed.

2. Upon reflection of triangular flaps the malar bone is exposed and with a Gigli saw three sections of the bone are made: (1) through the frontal process; (2) through the maxillary process, and (3) through the zygomatic process. To make sections 1 and 2, the Gigli saw is passed through the sphenomaxillary fissure. At section 3 the zygomatic process is sawed only partly through, the outer shell and the periosteum be-

ing left intact. Thus an attachment is conserved which prevents any dislodgment of the malar bone when replaced at the completion of the operation.

3. The malar bone reflected backward at once exposes to view the zygomatic fossa and its areolar tissue. One sees in the anterior portion of the wound the external aspect of the orbit.

4. A clearing of the contents of the zygomatic fossa is made now to expose the pterygoid plate. This is accomplished by following closely the surface of the posterior wall of the antrum and displacing backwards and downwards the areolar tissue and the temporal muscle. Before the pterygoid plate is exposed to view the internal pterygoid muscle must be detached.

5. With rongeur forceps a portion of the pterygoid plate is removed and the contents of the sphenomaxillary fossa exposed. To find the sphenopalatine ganglion one should expose first the maxillary division, as it enters the orbit through the sphenomaxillary fissure, and follow it up to the ganglion. The ganglion itself is deeply placed in the sphenomaxillary fossa, close to the sphenopalatine foramen. Surrounded by fat, it is not readily seen, hence the necessity of following the course of the maxillary division as a guide.

Throughout the operation one does not see the internal maxillary artery. One might have anticipated troublesome hemorrhage from this source, but such is not the case. The only arterial trunk that one sees is the continuation of the internal maxillary artery in the infraorbital artery. The space in which one works is comparable in size to that in the approach to the Gasserian ganglion and I have found my illuminated retractor—so satisfactory in the Gasserian ganglion operation—amply illuminates the field.

TRANS-ORBITAL PUNCTURE OF THE GASSERIAN GANGLION.

VAN ALLEN, C. M. (*Annals of Surgery*, November, 1921.)

This author presents a very thorough and interesting treatise on this interesting subject. He outlines indications for the use of this particular operation and describes the technic of Harris and Härtel. He takes up the anatomy in detail and graphically describes the introduction of the needle from without through the inner canthus of the eye along the orbital wall to the Gasserian ganglion. He uses a Patrick cranial needle 10 cm. in length and 1½ mm. in diameter equipped with a closely fitting stylet.

There are several pages of drawings made from anatomical subjects showing the depth of the ganglion from the inner canthus of the eye and the general direction which the needle should take, also illustrations of five clinical cases on which this technic was successfully carried out. These were largely extensive lesions of the cheek in patients who were unable to take

a general anaesthetic and in whom a purely local anaesthetic was not feasible.

The author makes the following statement in conclusion:

"It is evident that whatever injury is inflicted upon the root of the ganglion by the injection of alcohol will be shared to a less extent by neighboring nerves. This is true, no matter by what approach or technic the needle is entered, and transorbital puncture is no exception. Accordingly, until some means shall have been discovered of preventing this widespread diffusion of the alcohol, we cannot at all recommend the puncture in the therapy of trigeminal neuralgia.

"Other possibilities for the employment of the technic suggest themselves. It affords a method of withdrawing cerebro-spinal fluid directly from the basilar cistern. Wider experience may justify an attempt to use this route for therapeutic applications to the central nervous system. The effect of air injections in the x-ray diagnosis of intracranial disorders is likewise worthy of investigation.

"But in the meanwhile the results of this work, both anatomical and clinical, lead us to believe that transorbital puncture of the Gasserian ganglion furnishes a relatively simple means of securing block anaesthesia for operations in the territory supplied by the trigeminus, fully justified in cases where general anaesthesia is contraindicated."

CAUSATION AND AVOIDANCE OF CEREBRAL DISTURBANCE IN LIGATION OF THE COMMON CAROTID ARTERY.

Freeman in *Annals of Surgery* for September, 1921, writes an interesting article on the causation and avoidance of cerebral disturbance in ligation of the common carotid artery.

He discusses the former theories that this condition was due to anaemia of the brain followed by softening, and then seems to prove by his argument that this theory can not longer be held as correct. He proposes an apparently more rational theory, recently emphasized by Perthes, which indicates that thrombosis at the point of ligation followed by embolism is the real cause of cerebral symptoms. This accounts for the sudden onset of cerebral symptoms, and the greater or less interval which precedes them.

The preponderance of cases occurring after middle life is explained by the greater brittleness of the inner coat of the artery.

In order to avoid injury to the intima, Freeman ligates his artery with a strip of fascia lata and only ties it tight enough to occlude the lumen of the vessel, but avoids crushing the intima.

SOME RESEARCHES ON THE PERIARTERIAL SYMPATHETICS.

LERICHIE, RENE (*Annals of Surgery*, October, 1921.)

The author presents a very interesting article on the nerve supply of the various coats of ar-

teries, and has worked out an operation which is applicable in certain forms of trophic disturbances. He cuts down upon the artery and carefully decorticates it, thus severing the sympathetic nerve control which produces a dilatation of the arterial wall and hence improves the circulation. He shows two or three remarkable photographs of the healing of trophic ulcer after this treatment. This is a new procedure and, in selected cases, should probably be of great value.

A TECHNIC FOR LEG AMPUTATION.

Orr, Thomas G., (*Annals of Surgery*, November, 1921) presents a very rational and seemingly more adequate than usual method of amputation of the lower extremity.

He makes a long anterior and a short posterior flap in order that the scar may be placed in a posterior position both to free it from possible attachment to the bone or from pressure by the artificial limb. The deep fascia is dissected from the posterior flap in such a way that it may later be drawn up over the end of the muscles and stump in order to give a better bearing surface. The muscles are gathered over the ends of the bone with a purse-strong suture, the edge of the tibia is beveled off anteriorly so that there shall be no sharp projecting edge. The nerves are carefully freed and injected with absolute alcohol and are cut short. The anterior flap of fascia is then tacked down over the posterior flap, making an adequate buffer. A small drain is inserted laterally.

The method is well illustrated by excellent drawings.

CHRONIC DUODENAL OBSTRUCTION WITH DUODENO-JEJUNOSTOMY AS A METHOD OF TREATMENT.

Kellogg, E. L., and Kellogg, W. A. (*Annals of Surgery*, May, 1921).

Drs. Kellogg and Kellogg write as follows:

1. Chronic duodenal obstruction occurs more commonly than is realized and can often be diagnosed from the history and physical signs.

2. The most interesting articles dealing with this condition are by Robinson (1900), Conner (1906), Bloodgood (1907), and Codman (1908).

3. Experimentally, it has been shown that animals with an isolated duodenal loop die of a chemical rather than bacterial poisoning.

4. The obstruction may involve the first or second portions of the duodenum only, due to ulcer, or gastroptosis or adhesions; or the entire duodenum, most frequently caused by compression between the vertebral column behind and the superior mesenteric artery in front, especially when there is traction in the direction of the pelvis from the drag of a distended and ptosed caecum and colon.

5. The physical signs of obstruction in the first portion are those of pyloric obstruction. When the second and third portions are involved it can often be made out by percussion and succussion.

6. X-ray frequently fails to show duodenal obstruction, but may be rendered more effective if a special technic is used.

7. The symptoms are those of epigastric discomfort and toxic manifestations. With a competent pylorus, cramp-like pains predominate, when incompetent, regurgitation of bile is frequent. "Bilious attacks" are probably due to duodenal obstruction.

8. The symptoms are often suggestive of ulcer, gall-bladder, or appendicular trouble, and in operating for these conditions with negative findings the duodenum should be carefully examined.

9. Medical treatment, consisting of abdominal support, nutritious diet and anti-constipation measures, is beneficial in the majority of cases.

10. Surgical treatment in obstruction of the first and second portions consists of freeing of adhesions, gastropexy or duodeno-duodenostomy. In the third portion the procedure of choice is duodeno-jejunostomy.

11. Duodeno-jejunostomy is indicated in (a) vicious circle after gastro-enterostomy, (b) accompanying gastroenterostomy when the duodenum is obstructed, (c) in obstruction of the third portion not responding to medical treatment.

12. The total number of duodeno-jejunostomies reported are fifty-eight. There has been no mortality. In the author's series, thirty-six were completely relieved of very troublesome symptoms, four were markedly improved, and only one unimproved.

13. Duodeno-jejunostomy will save from invalidism a group of patients not amenable to other treatment and should be recognized as a definite surgical procedure.

Book Reviews.

The Early Diagnosis of the Acute Abdomen.

By ZACHARY COPE, B.A., M.D., M.S. Lond., F.R.C.S. Eng.; Surgeon to Out-Patients, St. Mary's Hospital, Paddington; Surgeon to the Bolingbroke Hospital, Wandsworth Common; Late Hunterian Professor, Royal College of Surgeons. London: Henry Frowde and Hodder & Stoughton.

Surgeons who have had a wide experience in the group of cases known generally as "the acute abdomen," will agree that in this condition correct early diagnosis is exceptional. There are still, however, many who do not appreciate to the full the significance of the earlier and less obvious symptoms of acute abdominal disease, and who regard an increased frequency of the pulse and rigidity of the overlying abdominal muscles as necessary accompaniments of the early stage of appendicitis; or find it hard to believe that a patient with a non-distended abdomen and normal pulse and tem-

perature, can be the victim of a perforated gastric ulcer.

In this compact and well printed book few references are inserted, and no bibliography appended; for while the writer readily acknowledges the great debt which he owes to the teaching of such leaders as Murphy, Moynihan, Rutheford Morison, Maylard and many others, it has been his aim to put down nothing which has not been frequently confirmed and demonstrated in his own experience.

At the same time, the writer has introduced many diagnostic points which he believes have either never previously been recorded, or to which insufficient attention is usually paid.

Treatment is not discussed apart from the general question of operative interference. With the exception of the colics, some abdominal injuries and certain tropical conditions which are discussed in their proper place, *operation by a competent surgeon at the earliest possible moment is the treatment which gives the best results* in all the acute abdominal diseases described in the text.

CONTENTS.

Chapter I—The Principles of Diagnosis in Acute Abdominal Disease.

Chapter II—Method of Diagnosis: (1) The History.

Chapter III—Method of Diagnosis: (2) The Examination of the Patient.

Chapter IV—Appendicitis.

Chapter V—The Differential Diagnosis of Appendicitis.

Chapter VI—Perforation of a Gastric or Duodenal Ulcer, Acute Pancreatitis.

Chapter VII—Acute Intestinal Obstruction.

Chapter VIII—Intussusception.

Chapter IX—Cancer of the Large Bowel—Volvulus.

Chapter X—The Early Diagnosis of Strangulated and Obstructed Herniae.

Chapter XI—Acute Abdominal Symptoms in Pregnancy and the Puerperium.

Chapter XII—Ectopic Gestation.

Chapter XIII—Cholecystitis and other Causes of Acute Pain in the Right Upper Quadrant of the Abdomen.

Chapter XIV—The Colics.

Chapter XV—The Early Diagnosis of Abdominal Injuries.

Chapter XVI—The Acute Abdomen in the Tropics.

Chapter XVII—Acute Abdominal Disease, with Genito-Urinary Symptoms.

Chapter XVIII—Spreading and General Peritonitis, Pneumococcal Peritonitis.

Chapter XIX—Diseases Which May Simulate the Acute Abdomen Index.

The reviewer recommends this little volume without reservation: in substance, style, paper, printing and illustrations, the book deserves nothing but praise. It is particularly recommended to the general practitioner.

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PNEUMONIA.

As we enter the season of increased prevalence of pneumonia, it is well to recall certain advances of practical importance in prevention and treatment. While pneumonia as a problem cannot yet be regarded as near solution as diphtheria, yet notable progress has been made and the application of knowledge already gained may be expected to diminish the morbidity and mortality of the disease which still heads the list of acute disturbances most widespread and fatal to mankind.

In the winter period of increased frequency of acute respiratory infections, it is especially important to avoid post-operative pneumonia arising in consequence of the use of general anesthetics on persons who have or are recovering from "colds," tonsillitis, laryngitis, or bronchitis. In the presence of such infections and a question of operative interference it is best, when possible, to postpone operation until the acute respiratory infection has wholly subsided. If operation is unavoidable, local is safer than general anesthesia. If general anesthesia must be used, gas oxygen or chloroform are to be preferred to ether.

Within the past ten years important advances have been made in a better understanding of the distribution and mode of transmission of the

pneumococcus. This organism has long been recognized as a common inhabitant of the normal mouth and a principal cause of all types of pneumonia. Its wide distribution among healthy persons has made it seem futile to apply the usual precautions against contagion, and for the most part such precautions have not been applied. It is now known, however, that all pneumococci are not alike in their disease-producing power. Types I and II are rarely found in normal persons, are present in a small proportion of those in intimate contact with pneumonia and are the most common cause of the more severe types of the disease. This limited distribution of Types I and II, which together cause about 60 per cent. of all cases of lobar pneumonia, offers a favorable prospect of limiting its spread by proper precautions. Types III and IV are harbored in the normal mouth and account for the remaining 40 per cent. of cases of lobar pneumonia. The indications for the control of pneumonia due to these types are less clear, but it is to be appreciated that the passage of an organism through a susceptible host increases its virulence and thus transfer of pneumococci from a patient with pneumonia favors the development of the disease. Simple methods already well understood should be instituted for the prevention of infection of those about patients with pneumonia, by isolation, and the avoidance of contact, droplet, and dust infection. Absence of sunlight and conditions of overcrowding are favorable for persistence and wider distribution of virulent pneumococci and should be avoided. Education of the public regarding the mode of transmission of organisms giving rise to contact, droplet, and dust infection is desirable. By such means a diminution of pneumonia may be expected, but methods of prevention must go further than this and gain control of those diseases which predispose to pneumonia, usually of the bronchopneumonic type, such as measles, whooping-cough, and influenza. For more successful prevention of these diseases, however, it is essential that the causes be discovered and the mode of transmission be better understood. Diphtheria, another predisposing cause of bronchopneumonia, is already preventable by application of the Schick test and the immunization of the susceptibles. The pneumonia problem should also be attacked by the further development of preventive inoculation. The work of Wright, Lister, Cecil and Vaughan, and Cecil and Blake, offers promise in this direction for man, and Cecil and Blake have recently carried the investigation a step further in monkeys, but prevention by this means is still in the experimental stage and preventive inoculation is as yet unsuitable for general adoption.

Animal experiments have shown that the repeated inoculation of animals with fixed types of pneumococci leads to the development of an immunity. The serum of such animals has specific protective and curative action against the

homologous organism. By the intravenous injection of serum obtained from horses immunized against Type I pneumococcus, favorable results have been obtained in the treatment of Type I pneumococcus pneumonia in man. Of 181 collected cases of Type I pneumococcus pneumonia without serum treatment, observed by Cole, Mathers, Fussell and Famulener, Hartman and Lacy, Clough and Richardson, 52 died, a mortality of 28 per cent. In contrast to this, is a series of 495 serum treated cases of Type I pneumococcus pneumonia, collected by Cole, including 195 treated at the Hospital of the Rockefeller Institute, with 52 deaths, a mortality of 10.5 per cent. While certain desirable details regarding the two groups are lacking and the controls are antecedent, not contemporaneous, cases, yet the number in the two series is large enough in considerable degree to balance possible errors.

Further evidence in favor of serum treatment is presented by Cecil and Blake (*J. Exp. Med.*, July 1, 1921) in the recovery of five monkeys with experimental pneumococcus Type I pneumonia, while the control monkeys all died. The serum treatment of other than pneumococcus Type I pneumonia has not proved effective, and it is undesirable to give Type I serum to all patients with pneumonia, irrespective of the type.

As in any specific serum therapy, the most favorable results are obtained by the early administration of serum. It is therefore of the greatest importance that the diagnosis of the type of pneumococcus infection be made as soon after the onset of the disease as possible. A specimen of sputum, obtained from the deeper parts of the respiratory tract, collected in a wide-mouthed, clean, and preferably sterile bottle, should be sent at once to the laboratory. As the determination of type depends on the growth of pneumococci in the abdominal cavity of a mouse, no antiseptic should be added to the sputum. The State Department of Health determines the type of pneumococci and furnishes the Type I antipneumococcus serum.

Certain precautions should be observed in the administration of alien serum to man, and they are especially important when large amounts of horse serum are given intravenously as for pneumococcus Type I pneumonia. Inquiry should be made regarding a history of asthma, hay-fever, or previous injection of serum. An affirmative reply places the patient in a group likely to be sensitive to serum. The initial dose of serum should not be given without first performing an intracutaneous test for sensitiveness and giving a desensitizing dose of horse serum. Serum treatment should not be used without first becoming familiar with the reactions which may follow and the methods of avoiding them.

THE ADDITION TO THE CHILDREN'S HOSPITAL, LONGWOOD AVENUE.

IN keeping with the modern conception of a hospital, the addition to the Children's Hospital stands as an example of the trend of the times. This institution, now in its fifty-third year, outgrew the former plant, and since 1913 has been expanding in its present location between Longwood Avenue and Van Dyke Street.

The demands for the care of children in a hospital especially equipped for this class of patients was met with enthusiastic response from the medical profession early in the history of specialization, and the foremost men in this community interested in pediatrics, orthopedic surgery and the general surgical problems of childhood, naturally grouped themselves together with the purpose of providing the best medical and surgical service. Under the guidance of these men, this hospital became more than a hotel for sick and crippled children, for the ambitions of the staff, together with benevolent contributors, have made it the field where investigation and adoption of all coördinate activities have wrought relief from suffering, so far as scientific medicine can influence the effects of disease. In addition to the benefits extended to individual patients, medical education has been aided and research stimulated by the men working within its walls.

Originally, hospitals were usually created for the purpose of caring for the indigent sick, and after it had been demonstrated that the study of disease and relief of suffering could be more efficiently prosecuted and applied in hospitals, people able to pay commensurate fees came more and more generally to those places where safety was greater and results more satisfactory than was usual in homes. How to combine hospital treatment for the indigent and paying classes has been a perplexing question, but this problem has been solved in many hospitals by the creation of wards for those able to pay reasonable charges. The income thus obtained is helpful in meeting the other expenses of maintenance and is a graceful tribute to an institution by those who can thus show their appreciation and desire to help the less fortunate.

Another feature applies to the staff, for the obligation imposed on the doctor today requires devotion to study, in addition to the performance of daily routine, and the conservation of energy necessitates arrangement of work so that time may not be wasted and fatigue may be avoided. A practice which requires attendance at hospitals and travel in seeing scattered patients should be avoided as far as possible, and therefore the segregation of patients is advantageous, enhances efficiency of the doctor and comfort of those under his care. The patient profits through the better quality of nursing service directly under the control and supervision of the attending physician.

With these ends in view, the Children's Hospital has taken the wing, formerly used as the nurses' home, and converted it into a model private hospital. In order to provide adequate quarters for the nurses, the Hotel Harvard has been acquired and made suitable for a home. The expense of remodeling the hospital wing amounts to about one hundred thousand dollars and provides ample accommodation for about forty-five patients. Certain suites are so arranged that mothers may live with the children. Four floors are given to the hospital and there are three porches which may be used as sun parlors in cold weather and open spaces in summer. The roof will also be prepared for accommodating convalescents. At the rear is a space for a flower garden.

For administrative functions every convenience has been provided. The kitchen, for example, is under the supervision of a competent executive, so that the dietary needs of patients and parents will be fully met.

The rooms are artistically decorated, with walls and hangings tinted in neutral and pleasing colors, and the furniture is in keeping with refined tastes with the idea of a home atmosphere and omission of the appearance of the usual hospital surroundings.

The operating rooms are on the upper floor and are of modern design and equipment. Accommodations for the surgeons are ample. The standards adopted by the American College of Surgeons are enforced. Special reporters are furnished for taking operating room and ward notes.

Patients of thirteen years and under are admitted and in special cases a limited number up to sixteen years. A special room is provided for the isolation of cases under observation for the possibility of the existence of a communicable disease, and no patients are permitted to mingle with others until ten days have elapsed from date of entrance.

By this extension the usefulness of a hospital, which admitted 4,682 patients last year and treated 11,396 in the out-patient department, is greatly augmented, and makes a notable addition to Boston's facilities for treating children's disabilities.

All who are interested in the economic aspect of curing disease should realize that the promotion of the health of a child may give to society valuable and useful lives for many years. The Children's Hospital is entitled to the endorsement of the medical profession and material assistance by the laity.

NEWS ITEMS.

DR. S. ADOLPHUS KOFF recently completed the manuscript for "The History of the Tuberculosis Movement in the United States," and this publication will be issued about April 1st. The January issue of the *Tuberculosis Bulletin* will

be devoted to a symposium on tuberculosis in industry. Among those who will contribute to this number from their respective angles and interests, are the following: Dr. Louis I. Harris, Dr. George R. Price, Dr. Galdston, Mr. Hoechauser and Mr. Hamilton of the N. T. A. Staff.

A MEETING of the Harvard Medical Society was held in the Peter Bent Brigham Hospital Amphitheatre Tuesday evening, January 24th. Program: "Physiological Principles Governing Ventilation when the Air is Contaminated with Carbon Monoxid." Speaker, Dr. Yandell Henderson, Yale University.

LAWRENCE REYNOLDS, *Sec.*

DR. RICHARD P. STRONG AND GORGAS MEMORIAL.—It has been announced that Dr. Richard P. Strong has accepted the position of Scientific Director of the Gorgas Memorial Institute at Panama. This does not mean that Dr. Strong intends to leave Harvard University. He will continue to direct his work here and will organize the Scientific Department of the Gorgas Memorial.

PROFESSOR HENRY CHRISTIAN and Professor W. B. Carmin will attend the meetings of the Pacific Northwest Medical Association at Spokane, next July.

DURING the week ending January 21, 1922, the number of deaths reported was 257 against 219 last year, with a rate of 17.51. There were 28 deaths under one year of age against 27 last year.

The number of cases of principal reportable diseases were: Diphtheria, 68; scarlet fever, 61; measles, 65; whooping cough, 13; tuberculosis, 38.

Included in the above were the following cases of non-residents: Diphtheria, 6; scarlet fever, 13; tuberculosis, 2.

Total deaths from these diseases were: Diphtheria, 5; scarlet fever, 2; whooping cough, 1; tuberculosis, 12.

Included in the above were the following cases of non-residents: Diphtheria, 1; scarlet fever, 2; tuberculosis, 1.

IN New York, most of the cases of bone and joint tuberculosis applying for relief at the Lorenz clinic were among those of foreign extraction or residents of other cities—in other words, among those who had not applied for orthopedic treatment in the city.

BOVINE tuberculosis is specially prevalent in certain parts of Scotland, and in those areas there is an undue proportion of bone, joint and gland cases, according to statements made by Dr. Stiles of Edinburgh.

DURING the week ending January 14, 1922, the number of deaths reported was 222 against 198 last year, with a rate of 15.15. There were 20 deaths under one year of age against 26 last year.

The number of cases of principal reportable diseases were: Diphtheria, 65; scarlet fever, 52; measles, 63; whooping cough, 12; tuberculosis, 76.

Included in the above were the following cases of non-residents: Diphtheria, 6; scarlet fever, 10; tuberculosis, 43.

Total deaths from these diseases were: Diphtheria, 6; scarlet fever, 1; measles, 1; tuberculosis, 8.

Included in the above were the following cases of non-residents: Diphtheria, 2; tuberculosis, 1.

HAMPDEN DISTRICT MEDICAL SOCIETY.—The regular winter meeting of the Society was held at the Springfield Academy of Medicine, 137½ State Street, Springfield, on Tuesday, January 24, at 4 P.M. Papers for the afternoon: "Gas Oxygen as a General Anaesthetic," James A. Seaman; "Some Figures on Cesarean Section," John M. Birnie; "Myositis Ossificans Traumatica," Dudley Carleton; Discussion by members. Mr. George Crosbie of Boston was present and explained the new insurance. Luncheon was served at expense of the Society.

WORCESTER DISTRICT MEDICAL SOCIETY.—The regular meeting of the Staff of the Worcester City Hospital was held Friday, January 20, 1922, at 8.30 P.M. Dr. Charles T. Estabrook described otitic meningitis and reported several cases. Dr. Gordon Berry exhibited his latest instruments for removal of foreign bodies in the esophagus, and showed a large number of such bodies which he had removed. Dr. Wm. F. Holzer described the diseases of the eye common in childhood. Dr. O. Draper Phelps reported a case of calculus outside of the urinary tract. Operation revealed that it was a calcified gland in the mesentery, which was removed. Dr. Walter B. Bieberback reported a case of calculus in the ureter which was missed by the x-ray. He stated that about 20 per cent. of urinary calculi were missed by the x-ray. Dr. Philip H. Cook discussed radium and its place in minor troubles.

THE Rockefeller Institute for Medical Research, on January 20, celebrated the 20th anniversary of its foundation with a reception, at which brief speeches were made by Mr. John D. Rockefeller, Jr., of the Board of Trustees, and Dr. William H. Welch, of the Board of Scientific Directors.

MASSACHUSETTS GENERAL HOSPITAL.—A clinical meeting of the Out-Patient Staff was held in the lower out-patient amphitheatre Wednesday, Jan. 25, at 12, noon. Program: "Present

Conception of Colon Pyelitis as Regards Treatment," Dr. E. G. Crabtree; "Management of Cancer of the Bladder," Dr. G. G. Smith; "Result of Study of the Question of Renal Calculi," Lantern Slides, Dr. J. D. Barney.

THE membership of the Massachusetts Medical Society amounts to three thousand nine hundred and thirty-three. The accessions for 1921 amount to two hundred and thirty.

MEDICAL NOTE.

A SERIES of institutes has just been completed under the auspices of Nutrition Clinics for Delicate Children. They have been held in Indianapolis, San Francisco and Los Angeles, in each case at the invitation of the medical societies, the Board of Education and the child-helping organizations, especially those concerned with the prevention of tuberculosis. In Indianapolis, there were 45 in regular attendance; in San Francisco, about 80; and in Los Angeles, 179. In each city special lectures were given by Dr. Wm. R. P. Emerson, before the county medical societies and other organizations. Los Angeles arranged for a special meeting of orthopedists, specialists in children's diseases and in tuberculosis. Addresses were given on nutrition work before large audiences in Vassar College, Leland Stanford, Jr., University, and the Universities of California and Southern California. A conference held at Honolulu has led the Social Service Bureau of the Hawaiian Islands to secure funds for an institute to be held there some time this spring.

Obituaries.

FREDERICK WADSWORTH HALSEY, M.D.

DR. FREDERICK W. HALSEY, for many years a teacher of diseases of the rectum in Boston University Medical School, died at his home in Boston, January 20, 1922, at the age of seventy-two, of angina pectoris.

He was a native of Plattsburg, N. Y., where he was born July 3, 1849; a graduate of George Washington University Medical School in 1871. Beginning to lecture on his specialty at Boston University Medical School in 1890, he was made associate professor in 1915 and professor emeritus last year.

He is survived by his widow, who was Miss Elizabeth Chapman of Vermont, and by two daughters. At one time Dr. Halsey was vice-president of the Massachusetts Homeopathic Medical Society, and he was a fellow of the American College of Surgeons.

WILLIAM CASTEIN MASON, M.D.

DR. WILLIAM C. MASON, surgeon, of Bangor, Maine, died in that city January 19, 1922. The son of John and Caroline Rogers Mason, he was born in Bangor, September 1, 1852. He received the degree of A.B. from Harvard in 1874, and from Harvard Medical School in 1878, serving as house officer at the Massachusetts General Hospital. He joined the Massachusetts Medical Society in 1877 and maintained membership for seven years, though settling in Bangor. There he was city physician from 1879 to 1881 and acting assistant surgeon in the Marine Hospital. From 1892 to 1907, he was visiting surgeon to the Eastern Maine General Hospital, which he had helped to organize, after the latter date being consulting surgeon, as he was also for many years, to the Eastern Maine Eye and Ear Infirmary and the Home for Aged Women.

Among the memberships he held may be mentioned the Penobscot County Medical Association, Maine Medical Society, Association of Military Surgeons of the United States, Bangor Historical Society, Maine Genealogical Society, Harvard Clubs of Bangor, Maine, and Boston, and in addition, several Masonic chapters.

Miscellany.

DOMESTIC QUARANTINE AND VENEREAL DISEASE.

"THE migration of persons suffering with venereal disease from their home state to another state without first procuring from their local health officer a permit, stating that their travel is not dangerous to public health, violates the Federal law forbidding the spread of contagious diseases and will be rigidly suppressed," says the U. S. Public Health Service.

"Last spring the Attorney General, at the request of the Service, instructed all United States attorneys to coöperate fully with it and to prosecute offenders vigorously. Since then several violators have been sentenced to reformatories, where their disease-spreading activities have been stopped and they, themselves, are receiving proper medical treatment.

"The law and the regulations based on it are not so widely known as they should be; and the objects sought in their enforcement are not everywhere clearly understood. The law seeks to control the spread of disease, but not necessarily to prevent the travel of venereally diseased persons. Such travel, if undertaken under proper precautions in search of medical help, will be encouraged by the Service. The

law, however, seeks to close every channel through which venereal disease may be spread; and to do this it has been found necessary to put a stop to the movements of those who seek to migrate from one state to another in order more safely to carry on the business of spreading disease.

"When such persons and their associates learn that travel from one state to another while venereally diseased, leads to arrest and severe punishment, they will have an added incentive for submitting to voluntary treatment; and the day will be hastened when every infected person will at once place himself, or herself, under the care of a skilled physician of his, or her, own selection.

"At present, it is probable that very many persons either never receive proper treatment or that they cease treatment too early in the belief that they are cured, and thus become dangerous. Laws on the subject differ in the different states; and this fact leads to migration from those whose laws are rigid to those whose laws are less so.

"No attempt, either by the U. S. Government or by state governments to police the state borders seems practicable. The laws of practically all states, however, require physicians to report all venereal cases that come to their attention; and a judicial or police investigation of the history of any apparent new-comer who chances to be arrested will early disclose most of the new arrivals in the state. These may then be proceeded against under United States law.

"Proceedings," adds the U. S. Public Health Service, "are based on the Interstate Quarantine Regulations, whose making by the Secretary of the Treasury was authorized by Congress February 15, 1893 (27 Stat. ch. 114, p. 449), amended March 3, 1901 (31 Stat., ch. 836, p. 1086). Objections on the ground that the regulations are insufficient or defective, or that Congress may not delegate its legislative authority, are without merit. The Secretary's act in making the regulations is administrative, and is authorized by the act of February 15, 1893. The penalty for violation is fixed by Congress, is legal, and has been sustained in United States courts. Details of the above are given in Reprint 693 of the U. S. Public Health Service, just issued."

Permits for travel obtained from the local health officer must state that the travel, in the opinion of the officer, is not dangerous to the public health. The traveler must state where he intends to reside; and he must agree, in writing, to report to the proper health officer there within one week after arrival, and to continue treatment under a reputable physician until the health officer certifies that he is no longer infectious. The health officer who issues the permit must promptly notify the new health officer, who must take appropriate action.

THE NEWER AMERICAN MEDICINAL CHEMICALS.

ON Friday, January 6th, Dr. Alfred S. Burdick, of Chicago, delivered an address before the Chicago Branch of the American Pharmaceutical Association, on the "Newer Medicinal Chemicals." The rapid growth of American chemistry through coöperation of all research agencies in this country, was emphasized by the speaker.

Concrete examples of American achievements in synthetic chemistry were recited, and a plea made for the support of the medical and pharmaceutical professions to preclude the possibility of our again becoming dependent upon foreign sources for chemical supplies. The history of arsphenamine, barbital, cinchophen, neo-cinchophen, chlorazene, procaine, the benzyl esters and other synthetic medicinal chemicals was outlined. Announcement was also made of a number of new chemical bodies recently developed, and others on which research work was now being done by the Rockefeller Foundation, various universities, the American Medical Association and the Abbott Laboratories.

In conclusion, Dr. Burdick urged both physicians and pharmacists to prescribe and dispense medicinal chemicals by the newer American names, rather than to perpetuate the pre-war dominance of foreign synthetics. This position was supported by the Council on Pharmacy and Chemistry of the American Medical Association, in whose laboratories American medicinal products have been analyzed and found to be equal, and in some cases superior, to foreign-made products.

A TRIBUTE TO THE SURGEON-IN-CHIEF OF THE HOSPITAL FOR RUPTURED AND CRIPPLED—DR. V. P. GIBNEY.

ON November 21, 1921, a dinner was given to Dr. Virgil P. Gibney, the present surgeon-in-chief of the Hospital for Ruptured and Crippled of New York City. This took the form of a jubilee, commemorating the fiftieth year of his connection with the hospital. It was given in the East Ballroom of the Hotel Commodore, corner of Lexington Avenue and 42nd Street, a particularly appropriate location, as the old Hospital for Ruptured and Crippled stood exactly on this site from 1870 to 1912, when the new building which it now occupies on 42nd Street, between First and Second Avenues, was completed.

Fifty years ago (1871) Dr. Gibney came to the Hospital for Ruptured and Crippled as interne, under its founder, Dr. James Knight. The institution had been in existence since 1863, at which time it occupied the private residence of Dr. Knight at 97 Second Avenue,

with accommodations for twenty-eight children. When Dr. Gibney began his internship, the new structure, with accommodations for two hundred children, was located at 42nd Street and Lexington Avenue, and had been occupied for about a year. In 1898, an additional building at 43rd Street and Lexington Avenue, communicating with the old hospital on 42nd Street, was completed. It is interesting to note that the hospital was so far up-town that it was regarded as a country hospital. The location of the hospital at the present time—two blocks east of this older site—is virtually in the heart of the city.

The growth of the Hospital for Ruptured and Crippled has been constant, in the variety of cases treated, as well as in their number.

During the first year that Dr. Gibney was associated with the hospital, the number of patients treated was 2,721, consisting of varicose veins, bowleg, knock-knee, club-foot, paralysis, curvature of the spine, spinal disease, hip disease, rickets, "white swelling," rheumatic contraction, hernia, etc. At this stage in the development of the institution, no surgical operations of any magnitude were performed, but in 1887, when Dr. V. P. Gibney, who had been resident assistant for 13 years, was appointed surgeon-in-chief, this phase of orthopedic treatment began to develop. Dr. William T. Bull was placed in charge of the hernia department at this time, and at his suggestion, children with hernia, who were not cured by trusses, were admitted to the wards for operation.

With the increased amount of work it has been necessary to divide the service of the hospital into four divisions: two orthopedic, with Drs. Royal Whitman and Henry Ling Taylor in charge; and two hernia, with Drs. William B. Coley and John B. Walker in charge. Dr. Virgil P. Gibney is the Surgeon-in-chief.

The present building is a modern six-story, brick structure, fully equipped with x-ray and pathological laboratories, brace-shop and sewing room employing nineteen people, plaster room for preparation of plaster of Paris bandages, Zander room, hydrotherapy department, laundry, refrigerating plant, etc. Most of the fifth floor is devoted to schoolrooms, including a large assembly hall, attractively adorned with kindergarten studies, etc., containing a piano and a moving-picture outfit, where convalescent children receive instruction from the municipal teachers of the City of New York, and where entertainments are given.

There are nine wards, with accommodations for 250 patients, including two wards for men and one for women. There are two operating rooms with adequate facilities for sterilization of supplies, adjoining anesthetizing rooms, dressing rooms, etc. During the year ending September 30, 1920, there were 1,256 orthopedic operations and 1,094 hernia operations performed, and a total of 2,268 in-patients

treated. The out-patient department, with its separate divisions for orthopedic cases, hernia, neurological, dental, nose and throat, corrective exercise classes, etc., is located on the ground floor with a large waiting room and light and airy examining room for children, with 16 separate booths. On this floor also are located the examining rooms for men and women, the plaster rooms, small operating room and rooms devoted to physiotherapy. In 1920 the number of new cases examined and treated in the out-patient department was 12,889. In the reports of the hospital, a very striking fact in comparing the recent reports with the old, is the increase in the number of cases of infantile paralysis treated and the marked diminution in the number of cases of bone and joint tuberculosis.

At the jubilee dinner, the development of the hospital, under Dr. Gibney, was briefly sketched. The attendance at this dinner of over 350, from many parts of the continent, representing the far West as well as the extreme South and our northern neighbor, Canada, attested much better than any mere description, the esteem in which the Chief is held by those who received their early training under his guidance, and who considered it a privilege to journey to New York City to congratulate him and wish him many more years of his useful and kindly service to the institution. Every man fortunate enough to have had a service under Dr. Gibney, carried away with him memories of kindness which time cannot dim. His unflinching zeal and untiring efforts to relieve the patient and to advance the science of orthopedic surgery have been an inspiration to his interested followers.

ISADOR ZADEK, M.D.

EARL E. VANDERWERKER, M.D.

EXCERPTS FROM STATEMENTS MADE BY THE SURGEON-GENERAL OF THE UNITED STATES.

THE dependence of national prosperity upon national health has ceased to be submerged in the public consciousness, and the necessity for adequate health protection is now a generally accepted fact.

The death rate from tuberculosis for the United States in 1910 was 160.3 and for 1920, 114.2. Again in 1910 the general typhoid fever death rate was 23.5 per hundred thousand population, in 1920, 7.8. It is safe to say that if in 1910 the statement had been made that in ten years' time the typhoid fever death rate would be only one-third of the figures at that time, the sanitarians generally would have been profoundly sceptical of any such prediction.

There are no considerable figures available from which an accurate statement can be made

regarding the infant mortality rate for the United States in 1910, but a conservative estimate would make the rate approximately 124 per thousand births. In 1920 the infant mortality rate in the birth registration area of the United States was 86 per thousand births, a clear gain of approximately 38 points in the last ten years. As a means to further reduce this rate may be noted the passage of the Shepard-Towner Maternity bill by virtue of which Federal funds are made available to the States. These funds will undoubtedly initiate much work on the part of the States and local communities to preserve maternal and infant life.

Again, in 1910 the scarlet fever death rate was 11.6 per hundred thousand population, and in 1920 it had fallen to 4.6. This illustrates the efficacy of general measures for the control of communicable diseases which play such an important part in the organization and activities of our various state and local departments of health.

The mortality from diphtheria shows the advance of preventive medicine in the control of this dread disease of childhood. The death rate from diphtheria in 1910 was 21.4 per hundred thousand population, and in 1920 it had sunk to 15.3.

In 1910 the death rate from diarrhea and enteritis in children under two years of age was 100.8; in 1920 this had dropped to 44.0. Thus has the toll taken by this scourge of infant life been reduced by more than half.

In 1910 the general death rate from pneumonia, all forms, was 147.7 per hundred thousand population, and in 1920 this death rate was 137.3. We have, therefore, made but relatively little advance in the problem of pneumonia control. The death rate from acute nephritis and Bright's disease was 99 in 1910, and had declined but to 89.4 in 1920. The death rate from cerebral hemorrhage, or apoplexy, in 1910 was 73.7 per hundred thousand population and rose to 80.9 in 1920. The case is similar as regards cancer. The death rate from this disease in 1910 was 76.2; in 1920, 83.4, an increase of over seven points per hundred thousand population. Again, the death rate from organic diseases of the heart was 141.5 in 1910 and the figures of 1920 show the rate to be 141.9, showing that no reduction from this great cause of death has taken place.

A preliminary stocktaking of the kind we have just outlined serves to show us where our health problems lie. That our measures against some of the communicable diseases have been fraught with so much success encourages us to undertake the difficult problems of the control of such diseases as organic heart diseases, cancer, pneumonia, kidney diseases, and the like.

Apart from the control of these diseases, one of the crying needs of the country is better organization of health work in the rural communities. A survey made by the Public Health Ser-

vice two years ago showed that only 3 per cent. of our rural districts had adequate local health organizations. It is a pleasure to announce that this number has increased during the past two years from 3 to 6 per cent. This only emphasizes the inadequacy of health service in our rural communities.

RÉSUMÉ OF COMMUNICABLE DISEASES. DECEMBER, 1921.

General Prevalence.

THERE were 5,940 cases of communicable diseases reported for this month. This represents a report of moderate size and was exceeded 2,000 cases by the report of December, 1920.

Anterior Poliomyelitis was reported in 10 instances, which was five less than the previous month.

Chicken-pox.—There were 900 cases of this disease reported for the month. For this season of the year this is not a large monthly total.

Diphtheria.—There were 1,088 cases reported for the month; total for last month, 1,185 cases. This, as last month, represents a large report and is the result of widespread incidence throughout the state.

Dog-bite requiring anti-rabic treatment.—There were 19 cases of this condition reported for the month. This is a large monthly total.

Gonorrhea and Syphilis.—Gonorrhea fell off from 460 to 372 for this month. Syphilis was reported in about the usual number, there being a total of 217 cases.

Influenza.—There were 46 cases of influenza reported during December.

Measles increased from 678 for November to 835 for this month. This is about the usual incidence of this disease at this season.

Lobar Pneumonia was reported 382 times. This is about the same number as reported the previous month.

Scarlet Fever increased from 661 for November to 740 for December. This is the usual history at this time.

Tuberculosis, Pulmonary.—There were 524 cases reported for the month, which is about the usual number.

Tuberculosis, other forms, were reported in 74 instances.

Typhoid Fever was reported 52 times.

Whooping Cough.—There were 249 cases reported for the month. This is the second month that the reported incidence has been relatively small.

RARE DISEASES.

Anterior Poliomyelitis was reported from Arlington, 1; Boston, 3; Haverhill, 1; Lawrence, 1; Melrose, 1; Norton, 1; Palmer, 1; Springfield, 1. Total, 10.

Dog-bite requiring anti-rabic treatment was reported from Boston, 1; Charlton, 1; Chelmsford, 4; Holyoke, 1; Lexington, 2; Lowell, 1; Lynn, 5; Newton, 1; Pittsfield, 1; Woburn, 1. Total, 18.

Encephalitis Lethargica was reported from Boston, 1; Chicopee, 1; Newton, 1. Total, 3.

Epidemic Cerebro-spinal Meningitis was reported from Boston, 1; Concord, 1; Everett, 2; Groton, 1; Holyoke, 1; Lynn, 1; Peabody, 1; Springfield, 1; Woburn, 1. Total, 10.

Malaria was reported from Boston, 2.

Septic Sore Throat was reported from Arlington, 1; Boston, 4; Braintree, 1; Fairhaven, 1; Fall River, 1; Lynn, 3; Leominster, 1; Methuen, 4; Middleboro, 1; Newburyport, 3; Stoughton, 2; New Bedford, 3. Total, 25.

Trachoma was reported from Boston, 2; Lynn, 1; Northbridge, 1; Springfield, 1. Total, 5.

Typhus Fever was reported from Boston, 1.

TUBERCULOSIS SCHOOLS FOR U. S. PUBLIC HEALTH SERVICE PHYSICIANS.

THE tuberculosis schools for medical officers in soldier hospitals and examining stations which were established some 18 months ago by the U. S. Public Health Service and were recently taken over by the Veterans' Bureau, have trained several hundred service physicians, four-fifths of whom have qualified in making special examinations of the chest and in reporting thereon with accuracy satisfactory to the somewhat exacting requirements of the Rating Board of the Veterans' Bureau. This has lessened the expenses for travel and the inconvenience and hazard to tuberculous veterans in going long distances to chest specialists, and has more than balanced the cost of the schooling.

These schools were established in the spring of 1920 in various parts of the United States. Courses of instruction were arranged and the students were chosen from among the medical officers and specialists in the service of the United States Public Health Service.

The course embraced instruction in topography, inspection, palpation, percussion, and auscultation, demonstrations of the normal chest, chest pathology, and finally a study of advanced cases in hospitals. The classes were divided into small sections for individual instruction under specialists, who guided each student through the steps of diagnosis, and taught him to visualize the conditions accountable for the physical findings.

A lecture and clinic on the heart, and a short course in x-ray and laboratory work, were also given, and cinema diagnostic films were exhibited. The latest course was held at Chicago during the week of December 5-11.

THE LEGISLATURE.

THE COMMONWEALTH OF MASSACHUSETTS.

REGISTRATION OF X-RAY TECHNICIANS.

A bill has been introduced (Senate 115), on petition of H. A. Moses:

To provide for the Registration of X-Ray Technicians.

It directs the board of registration in medicine to hold examinations for the registration of X-ray technicians. An applicant must be at least twenty-one, of good moral character and possessing such educational qualifications as persons who have completed one year in a public high school, and who have had one year of actual experience in practice in an X-ray laboratory or school in which the course of study consists of not less than twenty-five hours per week for a period of forty-eight weeks. Those found qualified shall be registered X-ray technicians, with the right to use the title, including the letters "R. T." as signifying registered technician, and to practice as such, and shall receive a certificate. The registration must be renewed annually. The board may, after a hearing, by vote of a majority of its members, annul the registration and cancel the certificate of any X-ray technician; and, without a hearing, may annul the registration and cancel the certificate of an X-ray technician who has been found guilty of a crime.

Examinations shall be partly in writing and partly in practical work, and shall include the principles of electricity, light, photography, physics and the action of X-rays on bodily tissues.

The board may register, without examination, any person who for a period of two years has made his principal occupation that of roentgenological technician, has devoted twenty-five hours per week as an actual assistant in roentgenological work with a licensed roentgenologist.

A registered technician shall practice his profession only as assistant to and under the direct supervision of a registered physician or dentist, and shall not use the X-ray except as directed and prescribed in each case for the treatment of disease by the supervising physician or dentist, or for the making of radiographs or X-ray pictures, and in no case shall he diagnose or profess to diagnose any disease that may be revealed thereby.

The board shall keep a record of all persons registered by it, and shall make an annual report.

A roentgenologist is defined as a graduate in medicine or dentistry who has by means of study and experience gained special skill in the use of the Roentgen ray or X-ray. An X-ray technician is defined as a person skilled in the use of the Roentgen ray or X-ray, but who does

not profess to diagnose disease from the plates taken, nor to designate methods of applying the X-ray in treatment. Penalties are provided for the violation of the act.

MIDWIFE REGISTRATION.

An Act for the registration of midwives (House 423) provides that no persons shall practice midwifery, or hold out as a midwife, unless she is registered.

The Board of Registration in Medicine shall hold at least two examinations annually.

An applicant must be twenty-one years of age or over, of good moral character, and a graduate of a reputable school for midwives, approved by the board, and which gives a course of not less than six months.

Examinations shall be written, oral or practical, as the board may determine, and shall include obstetrics, and prenatal and post-natal care. Qualified applicants shall be registered.

Registered midwives shall not be permitted to use any operative measures such as version, forceps, or any instruments except those necessary to sever the umbilical cord, or employ any drug, other than disinfectants and the salts of silver as applied to the eyes of infants.

Every registered midwife shall, before entering upon practice, submit her certificate of registration to the clerk of the town where she proposes to practice. The town clerk shall thereupon register her name and address, the date and number of the certificate, and said record shall be open to public inspection. A copy of such record shall be sent by the town clerk to the board within one week.

The board of registration is to be granted necessary assistants and the power to investigate complaints of the violation of the bill. Penalties are provided for violation of the act.

This bill has been referred to the Committee on Public Health. There are in the profession two views regarding registration. Those who believe in the policy of recognizing and educating midwives will naturally favor this bill. Those who believe in the gradual elimination of midwives by education and gradual conformation to American customs, will be opposed to any bill which recognizes midwives.

Other bills will be considered in later issues of the JOURNAL.

Various measures have been proposed which deal with the taxation of charitable institutions. Some of these measures will intimately concern hospitals.

NARCOTICS.

Senate 140, taken from the files of last year, provides the establishment of a Division of Registration and Narcotic Drug Control.

The bill reads essentially thus:

"There shall be a department of civil service and registration, which shall consist of a division of civil service and a division of registration and narcotic drug control. The commissioner of civil service and the director of registration and narcotic drug control shall act as a board in all matters affecting the department as a whole.

"The division of registration and narcotic drug control shall be under the supervision of a director to be known as the director of registration and narcotic drug control, at a salary, not exceeding four thousand dollars, appointed for two years.

"The various boards of registration and examination shall serve in the division of registration and narcotic drug control.

"Chapter one hundred and twelve of the General Laws is hereby amended by inserting under the heading, 'Narcotic Drug Control,' the three following new sections: (1) The director of the division may annually register such persons as he deems proper to engage in the business of the manufacture and sale of narcotic drugs, upon payment of the following fees,—wholesale jobbers, importers and manufacturers, five dollars; incorporated hospitals, scientific institutions and retail dealers, one dollar. (2) No person, except physicians and surgeons, pharmacists, dentists and veterinarians registered under this chapter, shall manufacture or have in his possession for purposes of sale any narcotic drugs, unless he is registered under the provisions of the preceding section. (3) The director of the division and the state police shall enforce the provisions of the two preceding sections and shall have the right to enter and inspect the place of business of any person registered under said sections.

House 600 forbids the sale or delivery of hypodermic syringes and needles except to registered physicians duly licensed to procure them.

Two bills introduced in the House on petition of William L. Roberts, Jr., stiffen the penalties for the unlawful possession or sale of narcotic drugs or hypodermic syringes or needles, to imprisonment for not less than three years in the first instance and not less than two in the other.

On petition of Samuel H. Wragg, a bill has been introduced in the House to restrict the use of habit-forming drugs. It forbids the possession by or sale to any person, not being a physician, dentist or veterinarian, pharmacist, manufacturer of surgical instruments, nurse, employee of an incorporated hospital, or a carrier engaged in transportation, of a hypodermic syringe, or hypodermic needle. It provides that a record shall be kept by the person selling such syringe, needle or instrument, which shall give the date of the sale, the name and address of the purchaser, and a description of the

instrument which record shall be open to inspection by the proper authorities.

It provides, further, that each building, place or tenement which is resorted to by habitual users of narcotic drugs for the purpose of using such drugs, or which is used for the illegal keeping or sale of the same, shall be deemed a common nuisance. Penalties of imprisonment are provided.

TREATMENT OF TUBERCULOSIS.

On petition of W. I. Hennessey, there has been introduced in the House the following Resolve providing for the appointment of a commission to investigate the feasibility of establishing a hospital for the treatment of surgical or non-pulmonary tuberculosis.

Resolved, That there be appointed by the Governor, with the advice and consent of the council, a commission consisting of seven persons, three of whom shall be registered physicians, who shall study and investigate the feasibility of establishing treatment of surgical or non-pulmonary tuberculosis. Said commission shall serve without compensation, but may be allowed for travel and necessary clerical expenses, such sums of money as the Governor and council may determine. They shall report to the next general court not later than the first Wednesday in January next, such legislation as may be deemed necessary.

TAXATION.

Several bills have been introduced, the intent of which is to call upon the State to meet, from its treasury, in whole or in part, the sum of such taxes as might now be levied by various municipalities upon educational institutions within its borders, were it not that such institutions were at present exempt from taxation.

Senate 37 provides that "if any of the income or profits of the business of the institution is . . . used for other than literary, educational, benevolent, charitable, scientific or religious purposes, its property shall not be exempt" from taxation.

House 373 provides that no insane hospital shall be exempt from taxation unless at least one-fourth of the property and one-fourth of the income is devoted to the care of free patients.

House 385 accompanies the petition of the Trustees of the Massachusetts General Hospital. It provides that no insane hospital shall be exempt from taxation unless one-fourth of all the resident patients shall be paying less than twenty-five dollars per week.

House 514 and 515 are introduced on petition of John Lowell.

One bill substitutes for certain clauses in the existing law the provision that the land owned and used by an insane hospital shall be subject to taxation.

REGULATION OF THE SALE OF CANDY.

House 497 is trying to place candy in the class with cigarettes and intoxicants. It forbids the sale of candy or other sweetmeats to any child of thirteen years of age or less without the written consent of parent or guardian.

VITAL STATISTICS.

House 143 provides for the employment of transcribers of town records of vital statistics and for the publication of such records by the Secretary of State in accordance with appropriations which may be made by the Legislature.

TUBERCULIN TEST.

House 534 provides that any person selling a cow which has reacted to a tuberculin test must inform the new owner in writing of this fact. The bill does not state that the information is to be given before the bargain is closed.

WORKING AGE FOR CHILDREN.

House 610, on petition of the American Federation of Labor, provides for raising the working age of children from fourteen to sixteen years.

COMMITMENT AND CONFINEMENT.

Three bills have been introduced, dealing with commitments to or confinements in institutions.

House 584 provides that no person shall be committed to an institution without reasonable notice, an opportunity to appear, and defend, with the request of a trial by jury. Exception is made only in the case of one being violent, and then for three days only.

House 602 is introduced on petition of the Order of Patriot Dames. It provides that it shall be unlawful to confine in an institution, any human being against his will and without his continuing consent, except as a punishment for crime. It further impresses upon every sheriff, notary, justice, court officer, and member of the Legislature, the duty of investigating any complaint in regard to any institution.

Comment upon these bills would be superfluous.

House 588, because more reasonable, may be seriously considered.

It provides that no state minor ward shall be committed to any state institution for the feeble-minded or insane unless examined by three reputable physicians appointed by the court. The bill, however, would exclude, oftentimes, those best fitted to judge in such a matter, by forbidding the employment of any physician employed in any capacity by the State or by any county or city.

The bill seems unnecessary. The latter clause appears unwise.

House 365 provides for regulating the manufacture and bottling of non-alcoholic beverages with a view to keeping them pure.

House 614, upon petition of the Massachusetts Undertakers' Association, removes the Board of Registration in Embalming from its present independent existence and places it in and causes it to hereafter serve in the Department of Public Health.

The reasons for such transfer are by no means obvious.

House 650, although applying only to the City of Malden, is of interest because it would establish a precedent. On petition of the Mayor and City Solicitor, it is proposed to abolish the board of health and the overseers of the poor, and to establish a single board of health and charities consisting of three members. The Mayor is also directed under civil service regulations to appoint an agent who shall be secretary and administrative officer of the board.

U. S. EXAMINATION FOR SPECIALIST IN CHILD HYGIENE.

BELOW will be found the specifications governing the selection of a specialist in child hygiene and for the filling of vacancies in other positions in The Children's Bureau.

Many careful students of our responsibilities and opportunities under the Sheppard-Towner bill, feel that since it has been enacted into law and may be adopted by many states, that every effort should be made to secure the greatest good possible under its operation.

We certainly need well-trained minds in the Children's Bureau, and it is quite well known that Massachusetts has many men qualified to fill positions specified in the circular.

Specialist in Child Hygiene, \$2,400-\$4,000. Receipt of applications to close February 14, 1922.

The United States Civil Service Commission announces an open competitive examination for specialist in child hygiene. A vacancy in the Children's Bureau, Department of Labor, Washington, D. C., at \$2,400 to \$4,000 a year, and vacancies in positions requiring similar qualifications, at these or higher or lower salaries, will be filled from this examination, unless it is found in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

Range in salary.—The entrance salary within the range stated will depend upon the qualifications of the appointee as shown in the examination.

Travel.—The appointee will be allowed actual traveling expenses and a per diem in lieu of subsistence when absent from headquarters on official business.

Duties.—The duties of appointees will be to plan and conduct investigations into the causes of infant, child, and maternal mortality in selected communities, rural and urban; into the methods of their prevention; into dangerous and injurious occupations; into the health of dependent, delinquent, and defective children, and other matters relating to the

health of children. Appointees may also be required to investigate maternal and child welfare through the holding of conferences.

Subjects and weights.—Competitors will not be required to report for written examination at any place, but will be rated on the following subjects, which will have the relative weights indicated:

SUBJECTS.	WEIGHTS
1. Education	25
2. Experience	50
3. Publications or thesis (to be filed with application)	25
Total	100

Basis of ratings.—The ratings on the first two subjects will be based upon competitors' sworn statements in their applications and upon corroborative evidence.

Education and experience.—Applicants must have graduated from a medical school of recognized standing; and, in addition, have had at least three years' specialization in the hygiene and diseases of maternity and childhood, either in the practice of medicine, or in educational preventive work in connection with maternal, infant, and child mortality conducted by public or private agencies.

Writings.—Under the third subject, applicants must submit with their applications publications of which they are the author on matters pertaining to child hygiene or the prevention of maternal, infant, and child mortality, or on the health of children in industry, or on the health of dependent, delinquent and defective children, or in lieu of such publications, a thesis on one of these subjects; or both such publications and thesis may be submitted.

Oral examination.—An oral test will be given at selected centers on a later date to those attaining an eligible average in the examination to determine their fitness for the position. This oral test will be given to competitors in the order of their standing and only to such number as the needs of the service require. A competitor who fails to pass the oral examination will not be eligible for appointment. Competitors will be notified of the date and place of the oral examination.

Age.—Applicants must not have reached their fiftieth birthday on the date of the examination. This age limit does not apply to persons entitled to preference because of military or naval service.

Retirement.—Classified employees who have reached the retirement age and have served fifteen years are entitled to retirement with an annuity. The retirement age for railway mail clerks is 62 years, for mechanics and post-office clerks and carriers 65 years, and for others 70 years. A deduction of 2½ per cent. is made from the monthly salary to provide for this annuity, which will be returned to persons leaving the service before retirement with 4 per cent. interest compounded annually.

Photographs.—Applicants must submit with their applications their unmounted photographs, taken within two years, with their names written thereon. Proofs or group photographs will not be accepted. Photographs will not be returned to applicants.

Residence and domicile.—Applicants will be admitted to this examination regardless of their residence and domicile; but only those who have been actually domiciled in the State or Territory in which they reside for at least one year previous to the examination and who have the county officer's certificate in the application form executed, may become eligible for permanent appointment to the apportioned service in Washington, D. C.

Applications.—Applicants should at once apply for Form 2118, stating the title of the examination de-

sired, to the Civil Service Commission, Washington, D. C.; the Secretary of the United States Civil Service Board, Customhouse, Boston, Mass., New York, N. Y., New Orleans, La., Honolulu, Hawaii; Post Office, Philadelphia, Pa., Atlanta, Ga., Cincinnati, Ohio, Chicago, Ill., St. Paul, Minn., Seattle, Wash., San Francisco, Calif., Denver, Colo.; Old Customhouse, St. Louis, Mo.; Administration Building, Balboa Heights, Canal Zone; or to the Chairman of the Porto Rican Civil Service Commission, San Juan, P. R.

Applications should be properly executed, excluding the medical certificate, and must be filed with the Civil Service Commission, Washington, D. C., with the material required, prior to the hour of closing business on February 14, 1922.

The exact title of the examination, as given at the head of this announcement, should be stated in the application form.

Preference.—Applicants entitled to preference should attach to their applications their original discharge, or a photostat or certified copy thereof, or their original record of service, which will be returned after inspection.

Issued January 3, 1922.

Correspondence.

THE TRAINING OF NURSES AND ATTENDANTS.

J. W. Bartol, M. D., Chairman,
Committee on Legislation,
Massachusetts Medical Society,
Boston, Massachusetts.

Dear Doctor:

I have read with interest the article by you on Legislation as proposed by the Massachusetts Medical Society, and was quite interested in it, especially because of article 7. The Training of Nurses and Attendants. Perhaps my recent admission to the Massachusetts Medical Society would make me hesitate to write so soon on any subject, but inasmuch as I have been intimately connected with nursing situations for the last eight years, perhaps my experience and associations could answer some of the questions you put.

I believe I may say, with some modesty—that I am the only physician who serves the nursing association in this state as a member of its Directory for Nurses, and I have served in that capacity for the past three years; am a member of the Massachusetts State Nurses' Association, Massachusetts Private Duty Nurses' League, Director of the Male Nurses' Association of Massachusetts, and founded and conducted until my entry into service in 1918, a school for attendants in Cambridge, which has had approval and recognition. In these various capacities, I have come into close contact with the nursing problems.

The resolutions you refer to as passed at the New England Surgical Society, about fifteen months ago by Dr. Mayo (I presume you mean Dr. Charles Mayo), I have not read, so cannot discuss. But I have read with interest Dr. Charles Mayo's interview to the *Pictorial Review* in October, 1921, also the criticisms and answers to it, by the nurses, in the *American Journal of Nursing*, *The Trained Nurse and Hospital Review*, and the *Canadian Nurse and Hospital Review*,—many of the answers of which are well put.

Has the Board of Registration gone too far in its requirements?

No. It should demand even higher requirements if it is to keep pace with the recommendations of the American Medical Association, and other similar organizations for classification of hospitals, according to their facilities—clinical, laboratory, etc.

Is there any practical way in which the training of nurses can be graded according to the type of work which they intend to undertake?

This question is impossible to answer, unless we have a sworn statement from the pupil nurse, saying she will restrict her work to a prescribed course, and will also practice only after receiving her training to this extent. It is possible to demand such a statement, and we haven't any law which would permit this, or is it probable we could effect such legislation.

Is the training of attendants and their recognition by the state the answer to this problem?

No. While we can, and should train attendants, there is no present provision for the supervision of these attendants, and no proscription of what they may do; and even if we did effect legislation recognizing the training of attendants, who is to supervise their work after they finish their training, and can the state supervise? Certainly in the matter of salary or wages, the state cannot set any arbitrary amount,—this would be unconstitutional.

Will the training of attendants carry us back to the conditions existing in the early days of the training of nurses?

Yes, if we are to permit the promiscuous training of these attendants, in unofficial and improperly conducted schools, which may be of commercial character. Again, who will have supervision over these schools, and who shall classify them, and set their standards,—especially if they remain to be created? Who will investigate and eliminate the undesirables from this work, and how shall the profession of medicine be prevented from employing the undesirables? They exist today without authority to control them or supervise them.

If we can secure a simplification of the nurses' training without lowering professional standards, much will be accomplished. This last statement in your article, would indicate that the present system of training is complicated; somehow this would open up controversy, for if you would know the standards of each state, you will find a national standardization, which is quite simple and not too complex.

As to whether the Massachusetts Medical Society can assume any leadership in the matter, this might be answered by saying that the influence of such an organization can be helpful, if not dictatorial, and if coöperative; but surely on a basis of Dr. Charles Mayo's statements, and also Dr. William Mayo's statement, (Mayo Clinic, 1920), we of Massachusetts should be conservative, and hesitate in committing ourselves to some of his policies which are quite radical, and not easily applicable to present conditions, nor should we forget to remember that Massachusetts has contributed no small part to the pioneer movement of nursing in the United States, and that here may be found splendid leaders, well versed in the nursing problems, conservative and yet progressive, who would be only too glad to lend their knowledge to this movement. For though statements have been made to the contrary, nurses are not arbitrary or effecting a closed shop. The Massachusetts Medical Society might appoint a committee of its members to meet a committee from the Massachusetts State Nurses' Association, to coöperate in the solving of these problems; it would be a happy precedent.

Personally,—the whole gist of this problem is to secure attendants at lesser rate than graduate nurses for the poor,—as one experienced in training these women, I must admit, as others interested in train-

ing attendants, that though our motives of supervising are the best and most ethical, nevertheless, we cannot control the situation after we have trained them; they can and do charge prices equal to graduate nurses, who are skilled and, strange to say, they are paid these salaries. The question is who can control the salaries, of each group, and can the state legislate? Training and its standardization is of secondary importance, and might be controlled or supervised.

I would be glad to render any service I can in this matter, but I would advise a non-committal attitude at the present time as regards nursing matters until this subject is more completely discussed and considered. Perhaps the profession would hesitate to coöperate with the nursing organizations, fearing this might commit them to a recognition of the nursing organizations officially; but if we will progress, this must come eventually, and why not now?

Very sincerely yours,
DAVID H. GIBSON, M.D.

MEDICAL LEGISLATION.

Mr. Editor:

It is a well-known fact that even a worm will at last turn and defend itself and, by implication, also its fellow worms.

I was for a time one of the "alleged spokesmen" who (Dr. Nason of East Foxboro states) "do not oppose or feebly oppose" legislation hostile to Medical Interests in State and Nation.

Let me say in behalf of myself and of Worcester and of Bartol, of Withington, of Bowers, and of Gay (to go back no further), that it is the apathy of the general practitioner and not the "feeble" efforts of the spokesmen, that makes so difficult the stemming of hostile legislation and the furtherance of what seems to us desirable.

Let me inform him that while his "feeble spokesmen," day after day and week after week, for months at a time, present themselves at the State House on Beacon Hill, it is with the utmost difficulty that the majority of physicians throughout the state can be induced to cross the street to present to an individual legislator the views of the profession on a given subject.

That they will, as a rule, heed neither the requests of the Committee on State and National Legislation nor those of the member of the Auxiliary Committee who lives in their vicinity, and that a general appeal for help at home rouses to action but a small portion of the 3,600 members of the Massachusetts Medical Society. May I also state that our society is not a collection of plutocrats, as Dr. Nason implies; that it does include men with small as well as those with large incomes; that it has always tried to gather in all reputable physicians practising in the State and has largely succeeded in so doing; that as Chairman of the Committee on Membership I can state that increase in dues has not resulted in a falling off in membership and, finally, that as preparer of the budget, I would be pleased to know what features that "certain members wish to enjoy and others do not" he would have eliminated for, unless my committee is instructed, it cannot know how to proceed.

Mr. Editor: No game was ever won by those who stand on the side lines and kick. All kicking should be done in the field and at the ball. A united profession behind and in support of our legislative committee can do much to assist it to attain its ends.

SAMUEL B. WOODWARD, M.D.

REGISTRY OF BONE SARCOMA.

Mr. Editor:

I wonder if you would give me your help in obtaining some statistics for the Registry of Bone Sarcoma. It is desirable to know the frequency of occurrence of cases of this lesion and there are no statistics by which we can obtain it. It occurred to me that a pretty accurate estimate could be made in the following way:

According to the Directory of the American Medical Association the population of Massachusetts is 3,662,329 and the number of physicians 5,494. If each one of these physicians should drop me a postal saying, either "I do know or I do not know of a case of bone sarcoma at present alive in Massachusetts," we should have almost by return mail the best information in the world on the percentage of this disease per capita of population.

Of course, I realize that your JOURNAL, interesting and instructive as it is, by no means reaches every physician in the state and that many of those whom it does reach do not read everything in it. Nevertheless, there seems to be a way to counterbalance that discrepancy. If every physician who *does* read this letter will constitute himself a local committee for a week and ask every other physician he meets during that week whether he knows of a living case of bone sarcoma, and obtains their signatures, I believe we should reach nearly every physician in the state. These could be checked off in the Directory and I could make a personal appeal to the remainder.

I believe that every doctor in Massachusetts would be glad to contribute his bit to medical science, if the doing so did not involve too much time and expense. This plan would involve but a minute of time and a cent apiece, so the main thing would be to get the plan to them. Will you try it? They will each do their bit if you do.

A few words about the Registry may not be out of place. The Registry of Bone Sarcoma aims to be a combined national study of the diagnosis and treatment of this lesion. Although organized independently by Dr. Bloodgood of Baltimore, Dr. Ewing of New York and the writer, it is now a Committee of the American College of Surgeons. Our object is to register every case of bone sarcoma and by following the cases (through their medical attendants) to learn what the result of each is and what, if any, forms of treatment are effective. At present, these cases are too rare for any one surgeon or clinic to obtain a sufficient number for study. We do not expect to find an excessive number in the whole country. In fact, during the year and a half in which we have been collecting cases, we have only found four five-year cures by amputation, and altogether only under one hundred cases which are now living, including those known to be moribund.

If the physicians of Massachusetts will promptly send in the postal cards, negative and positive, as above suggested, we shall at least know what the problem is in this state. All supposed-to-be bone sarcomas should be reported, including giant-cell tumors, except epulis. We want to know of all cases now alive whether cured, under treatment or moribund. We want negative answers as well as positive.

When we once know who has charge of each case in Massachusetts we can communicate directly with him and perhaps by showing our collection help him to treat his particular case more satisfactorily. We can, at least, give him expert pathologic opinion on sections of tissue. We should be glad to demonstrate our collection to anyone interested.

I hope, Mr. Editor, you may see fit to publish this letter, although I fully realize that it may be a precedent you do not care to establish. I ask the favor because our Committee represents a great na-

tional association which has undertaken this intensive study of a rare and singularly fatal disease. The work of the Committee consumes a great deal of time and I hope that you and your readers will help us out.

The American College of Surgeons holds its Clinical Congress in Boston next October. I hope we shall then be able to state the exact number of cases of bone sarcoma in Massachusetts, with pathologic proof of each case if it is obtainable.

Should this letter be read by physicians outside of Massachusetts, I may repeat that this investigation is a national one, and we should appreciate any positive reports of cases. It is only in Massachusetts that I am trying to get *negative* as well as positive replies.

Sincerely,

E. A. CODMAN, M.D.

[NOTE.—Here is an opportunity for the profession to contribute to this study of an important subject. Let everyone do his part and send in his postal card. —Editor.]

CONCERNING LEGISLATIVE PROTECTION.

Spencer, Massachusetts,
January 16, 1922.

Mr. Editor:—

It seems to me that we, as physicians, ought to take an active interest in defeating the plan of John N. Cole, Chairman of the Department of Public Works of Massachusetts, to increase motor registration fees and impose a tax on gasoline.

It is not that we are unwilling to bear our fair share of taxation, because we *are* willing to bear it, but that such a tax on gasoline, particularly for the purpose proposed, will be unfair to every physician in the state, for the country practitioner uses the state road probably less than 10% of his actual mileage, thus a tax of two cents per gallon on gasoline would mean that he would be paying a tax of twenty cents on each gallon he uses to travel on state roads. The rest of his travels are on country roads, usually poorly kept up. The city practitioner uses mostly the streets of his own town where he pays taxes, and to burden each gallon of gasoline he uses is obviously unfair.

Therefore we should all use our influence with our representatives and senators to oppose such a tax (and the same applies to the raising of registration fees to approximately double the present rate) and make our stand known in no uncertain manner.

Here, now, is a concrete example of the value to us of a Medical Legal Society. The present Legislative Committee would be reluctant to assume the leadership in a fight for the doctors' financial saving. The present committee might feel that its influence in the field of medical legislation would be weakened thereby, and with that I agree. But—and here is the point—we need an organization outside the Massachusetts Medical Society, state-wide in scope, having for its object the furthering of the material welfare and the protection of the material interests of its members. Its membership would be composed of all practitioners of the state who care to join. A legal department would be a prime essential. It would not be hampered by any of the traditions belonging to any existing organization but could begin on a new, progressive formula.

Dr. Hutton of Shelburne Falls, and Dr. Upton of the same city, have expressed themselves along this line, and I make the following as a concrete suggestion:

Let Dr. Hutton and Dr. Upton call a meeting of physicians who can come to a central part of the state, say Worcester, for instance, and have those few draw up plans, simple and direct, for a Medical Legal Association, and offer that plan to the physicians of

the state by personal letter or through the columns of the JOURNAL.

Many who could not attend the original meeting would join and be glad of the chance to assist in the growth of the organization, and reap its benefits.

Wide expression of opinion is necessary and desirable. To those digging along in the old rut it will seem unnecessary, but shall the progressives be impeded in their progress by the inertia of the well-fixed, the satisfied, and the retrogressionists?

Sincerely yours,

J. R. FOWLER, M.D.

[NOTE.—The JOURNAL will open its columns for further expressions of opinion.—*Editor.*]

LEGISLATIVE MATTERS.

Shelburne, Falls, Mass.,
January 21, 1922.

Mr. Editor:

In your issue of January 19, appears a letter from Dr. Nason along similar lines to those of my letter of December 29. In your comment on this letter you say that "the other severe indictment of our alleged spokesmen is almost cruel and shows that our correspondent is not fully informed of the time and attention devoted to legislative matters by the President and other officers of the Society, etc." Now Mr. Editor, without wishing to enter into a wordy controversy with you, in which I am sure to get the worst of it as you will always have the last word, I will only call your attention to the fact that I did not intimate that our officers had not spent or did not spend time and effort in legislative matters connected with our professional work. What I did say, in effect, was that these same officers often did not represent the opinion and desires of the majority of our members and I still hold to that statement.

As an example, I will take the case of Ex-Pres. Worcester. It is granted that he spent a large amount of time and labor in drawing up and advocating the "Young Maternity Benefits" bill. But that bill was most bitterly opposed by a large majority of the profession in this State. He came to a meeting of the Franklin District Medical Society to advocate the passage of this bill and seemed much displeased when he found the majority opinion against him. From these facts I draw the conclusion that it should be the duty of our officers not to act as propagandists of any new piece of legislation, that is of vital interest to our members, until they first have ascertained by referendum or otherwise the feelings and desires of the majority of our members. Perhaps I am mistaken in my belief, but in a democracy the majority is supposed to rule and I, for one, do not choose to have my thinking done for me by any one, no matter how eminent a member of our profession he may be.

Very truly yours,

CHARLES L. UPTON, M.D.

NOTE.—It is pertinent to again make public the fact that the ex-president referred to tried to ascertain the attitude of members of the Society through a questionnaire asking for facts and opinions relating to the subject referred to by the correspondent. May it not promote harmony if we extend generous appreciation of sincerity even though we disagree on measures advocated.—*Editor.*

INTEREST IN COÖPERATIVE HEALTH PLANS FOR BOSTON.

A MOVEMENT has been inaugurated to place at the disposal of the Mayor of Boston and the Health Department, such assistance as may be

desired in formulating and executing plans designed to insure a model administration of health measures. There seems to be no disposition on the part of those interested to intrude or to dictate, but rather assure the Mayor that the medical profession is in sympathy with his avowed purpose to give the city every protection which may be expected from an efficient application of recognized methods. With this end in view conferences have been held with the Mayor, the details of which are set forth in the subjoined letters and resolutions:

Boston, Massachusetts.
January 19, 1922.

Hon. James M. Curley,
Mayor-Elect of the City of Boston.
Sir:—

As an introduction to the Resolution subjoined, the undersigned Committee has prepared the statement which follows:

The Committee does not wish to imply that a change in the Health Commissionership of the City of Boston is desirable, undesirable, necessary or unnecessary.

Should a change in the Health Commissionership become desirable or necessary the Committee wishes emphatically to state that it was appointed with the understanding that it would not attempt to further the candidacy or to support the claims for the Health Commissionership of any individual.

The Committee believes that it will have fulfilled its functions when it has conferred with you in regard to the principles endorsed by its constituents and has published for the information of the public a statement of its position and of the action taken.

Believing that you, as Mayor-Elect, appreciate the importance of health to the citizens of Boston, and the great responsibility resting upon you, and upon you alone, in the selection of a new Health Commissioner,—if, indeed, circumstances should render such a change desirable or necessary,—and assuming that you realize the rapid development which is taking place in methods for the prevention of disease and for the administration of affairs pertaining to the health of the public, the undersigned Committee desires in all modesty and sincerity to direct your attention to the fact that with the developments above mentioned has come to members of the medical profession an increasing sense of their responsibility to the public in matters pertaining to the prevention of disease and a realization that it is incumbent upon the medical profession to offer any assistance which may be in its power for the furtherance of the interests of the public in matters pertaining to health.

(Signed)

GEORGE C. SHATTUCK, *Chairman*.
HORACE D. ARNOLD.
WILLIAM H. WATTERS.
MILTON J. ROSENAU,
HORACE MORISON.

Boston, Massachusetts.
January 19, 1922.

Hon. James M. Curley,
Mayor-Elect of the City of Boston.
Sir:—

The undersigned Committee begs leave respectfully to present to you a Resolution which was adopted at a meeting of delegates of medical and of other organizations interested in public health and preventive medicine in the City of Boston. The meeting was held on January 11th, at 8 P.M., in the Boston Medical Library.

The Resolution was unanimously adopted by the

delegates, acting as individuals, and with the understanding that it should be sent to their respective organizations for official consideration.

The delegates present at the meeting represented the following organizations:

American Red Cross (Boston Metropolitan Chapter)
 Baby Hygiene Association
 Boston Health League
 Boston Lying-in Hospital
 Boston Tuberculosis Association
 Boston University School of Medicine
 Children's Hospital
 Faculty of the Harvard University Medical School
 John Hancock Mutual Life Insurance Company
 Instructive District Nursing Association
 Massachusetts Charitable Eye and Ear Infirmary
 Massachusetts General Hospital
 Massachusetts Homeopathic Hospital
 Norfolk District Medical Society
 Peter Bent Brigham Hospital
 St. Elizabeth's Hospital
 Suffolk District Medical Society

The resolution adopted at the meeting is as follows:

"Resolution Passed at a Meeting Called by the Committee on Public Health of the Suffolk District Medical Society on January 11, 1922.

Whereas we believe that maintenance of health and the prevention of disease is of vital interest to all citizens of Boston, and

Whereas the function of the Department of Health in the prevention of disease and the preservation of health is expanding in importance and should continue so to expand, and

Whereas the citizens must inevitably pay the penalty in health and in life if their Department of Health should fail to maintain the highest efficiency, and

Whereas it is rumored that the Commissionership of Health for the City of Boston may soon become vacant,

Be it therefore resolved:—

Firstly: that the Commissionership of Health is an office of the very greatest importance to the welfare of the citizens of Boston.

Secondly: that the Commissionership of Health should at all times be held by a specially trained and qualified man.

Thirdly: that the most essential qualifications for the Commissionership of Health are high character, special educational training for health work, experience in public health work, and qualities of leadership with administrative capacity.

Fourthly: that in order to make the Commissionership of Health a position that will at all times attract the best men, it is essential to maintain the principle that tenure of office is dependent not on political considerations, but on character of service alone.

Fifthly: that the organized bodies voting the above resolutions should offer to the Mayor-Elect all possible support in giving effect to the said resolution."

After adoption of the resolution it was voted that the Chair appoint a committee of five with power, who should coördinate the official endorsements of the resolution, present the resolution to the Mayor-Elect, and perform other functions deemed by it necessary on behalf of its constituents.

The Committee has sent the Resolution not only to the organizations represented at the meeting, but also to many other bodies which it was thought might be interested in the movement. Several of these bodies have already endorsed the Resolution.

The time elapsed since January 11th being short, many organizations have been unable as yet to take official action, but members of the Committee have received assurances that a number of these bodies approve the principles set forth in the Resolution and that their hearty support will be evinced in due time officially.

Endorsements are expected not only from most of the organizations which sent delegates to the meeting, but from a further considerable number of interested bodies.

Respectfully submitted by the Coördinating Committee.

(Signed)

GEORGE C. SHATTUCK, *Chairman*.
 HORACE D. ARNOLD,
 WILLIAM H. WATERS,
 MILTON J. ROSENAU,
 HORACE MORISON.

(Endorsements Appended.)

ENDORSEMENTS.

1. Prof. C. M. Hilliard, Chairman of the Health Service Committee of the Boston Metropolitan Chapter of the Red Cross.

2. Dr. Richard M. Smith, for the Baby Hygiene Association, with the sanction of a majority of the Board of Trustees.

3. Executive Committee of the Boston Lying-in Hospital.

4. Executive Committee of the Boston University School of Medicine.

5. Executive Committee of the Staff of the Peter Bent Brigham Hospital.

6. Board of Managers of the Instructive District Nursing Association.

7. Household Nursing Association, Incorporated, and Training School for Attendants.

8. Massachusetts Society for Social Hygiene.

9. General Executive Committee of the Staff of the Massachusetts Homeopathic Hospital.

10. Boston District of the Massachusetts Homeopathic Society.

11. Dr. William R. P. Emerson, President, on behalf of the Nutrition Clinics for Delicate Children.

12. General Executive Committee of the Ophthalmic and Aural Staffs of the Massachusetts Charitable Eye and Ear Infirmary.

In addition to the endorsements of the Resolution, the attached letter has been received from Mr. Kelso, Executive Secretary of the Boston Council of Social Agencies. This organization includes about 178 Social Agencies.

Boston Council of Social Agencies.

January 17, 1922.

Mr. Horace Morison,
 Boston Health League,
 163 Meridian Street,
 East Boston, Mass.

Dear Mr. Morison:

In the matter of the resolutions which the Coördinating Committee of the Suffolk District Medical Society contemplates presenting to His Honor, the Mayor, there is likely not a dissenting voice in the entire group of social agencies involved in this Council against these proposals. The Boston Council, as such, being organized not for the purpose of expressing its opinion, or of supporting definite proposals, is not as a matter of basic policy in a position to give formal endorsement to the resolutions.

Personally, I know how well received this statement would be by all our agencies, and I know that His Honor, the Mayor, who has always sympathized with the social service work which this group is rendering, would understand how much they desire the highest possible degree of skill at the head of the public health administration of the city.

Very truly yours,

(Sgd) ROBERT W. KELSO,
Executive Secretary.

A second letter of especial importance, received

from Dr. Robert B. Osgood, Chairman of the Executive Committee of the Boston Health League, is appended:

Boston Health League,
163 Meridian St., East Boston.

January 19, 1922.

Dr. George Cheever Shattuck,
Chairman of the Co-ordinating Committee,
205 Beacon St., Boston, Mass.

My dear Dr. Shattuck:

In regard to the resolutions that were adopted at a meeting of the representatives of the medical and other organizations, held January 11th, 1922, and which it is desired to present to His Honor, the Mayor-Elect, these resolutions have been referred to the various member agencies of the League. At this time a number of the agencies have already signified their approval.

An expression of opinion in a matter of this kind should come from the agencies themselves rather than from the Council or Executive Committee of the League. I am confident that the group of health and other agencies in the League will be anxious to ratify the resolutions as soon as it is possible for their committees or boards to meet, and for myself and other members of the Executive Committee, as individuals, I am only glad of the opportunity of sending you my hearty endorsement.

Very truly yours,

(Sgd) ROBERT B. OSGOOD,

Chairman Executive Committee.

Copy of letter sent to the following newspapers, Thursday evening, January 19, 1922:

Boston Advertiser, Christian Science Monitor, Boston Telegram, Boston American, Boston Herald, Boston Transcript, Boston Jewish American, Boston Globe, Boston Post, Boston Traveler.

To the City Editor.

Sir:

At a conference with Mr. James M. Curley, held this afternoon, the foregoing documents were presented to him and are hereby offered to you for publication with the sanction of Mr. Curley and of the Committee which has signed the papers.

Very truly yours,

(Sgd) GEORGE C. SHATTUCK,

Chairman of Coördinating Committee.

NOTICES.

THE SPRINGFIELD ACADEMY OF MEDICINE.—On the evening of March 7, 1922, at the Central High School Hall a public meeting, under the auspices of the Academy, will be held for the purpose of emphasizing to the laity the sound, scientific basis on which the practice of medicine rests. The speaker will be Dr. Ernest LaPlace, Professor of Clinical Surgery at the University of Pennsylvania, and a graduate of the University of Paris. He has chosen for the subject of his address, "Louis Pasteur," whose pupil he was for many years.

Members are urged to report interesting cases more frequently.

The Academy wishes to enlarge its membership. Will members please see that every eligible physician receives and signs an application blank?

The January meeting of the Springfield Academy of Medicine was held Tuesday, January 10, with Dr. Hugh Auchincloss of New York City as speaker. Dr. Auchincloss read a paper entitled "Surgery of the Hand." Luncheon was served after the meeting.

ALLEN G. RICE, *Secretary.*

CHILDREN'S HOSPITAL—Clinical Meetings of the Staff of the Boston Children's Hospital will be held in the amphitheatre once a month from November to May inclusive. The meetings will be held on Friday afternoons at 4.30 P.M. All members of the profession are cordially invited to be present. The dates of the meetings are November 4th, December 9th, January 13th, February 10th, March 10th, April 14th, and May 12th.

THE NEW ENGLAND PEDIATRIC SOCIETY.

The seventy-second meeting of the New England Pediatric Society will be held at the Boston Medical Library on Friday, February 10, 1922, at 8.15 p.m.

The following papers will be read:

1. President's Address.

Richard M. Smith, M.D., Boston, Mass.

2. Is there More than One Kind of Rickets?

Edwards A. Park, M.D., New Haven, Conn.

(Discussed by F. R. Ober, M.D., Boston.)

3. The Experimental Feeding of a Vitamin-Deficient Diet, with Especial Reference to Scurvy.

L. W. Smith, M.D., Boston.

Light refreshments will be served after the meeting.

RECENT DEATHS.

DR. J. MACDONALD, Jr., of the Surgery Publishing Co., died on Saturday, January 7th, 1922.

THE American Association of Anaesthetists and the Mid-Western Association of Anaesthetists will hold a joint meeting in St. Louis, May 23-24, at Hotel Jefferson, the first three days of the A.M.A. week.

LEGAL HEARINGS.

BEFORE COMMITTEE ON PUBLIC HEALTH.

February 6—On Vaccination.

February 8—House bill 423. Petition for registration of midwives.

February 8—House bill 600. Petition relative to the sale of hypodermic syringes and needles.

February 8—Relating to the Appointment of Members of the Board of Registration in Medicine, and the bill for the Limited Practice of Medicine.

February 13—Bills relating to the use of narcotic drugs.

February 13—House 749. Petition of Janet MacAdam, relative to the waiver of education requirements for certain applications for registrations as chiropodists.

February 13—House 956. Petition of S. H. Wragg, for further restrictions of the use of habit-forming drugs.

February 13—Senate 140. Establishing the Division of Registration and Narcotic Drug Control.

February 14—House 588. Relative to commitment of insane or feeble-minded.

RESEARCH CLUB OF HARVARD MEDICAL SCHOOL.—At the meeting to be held on Friday, February 3rd, in the Amphitheatre in Building A, at 12.30 o'clock, Dr. Alexander Forbes will talk on "Modern Views of Nerve Physiology."

The Boston Medical and Surgical Journal

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Original Articles.

A RECONSIDERATION OF THE DYSPEPSIAS.*

BY FRANCIS W. PALFREY, M.D., BOSTON.

THE subject of the dyspepsias, or functional disorders of the stomach, cannot be pointed to as one of the outstanding successes of modern medicine. Yet it is an important subject from the frequency of stomach complaints without evidence of organic disease. Many cases are benefited by medical advice, but probably all of us know of patients who have passed from one doctor to another and still complain. The physiology of digestion, on the other hand, is a subject upon which a great deal is known. We clinicians have not kept pace with the physiologists in working out the abnormal physiology or clinical pathology. We know much about the normal working of the machine, but have not yet worked out so well a practical trouble chart to enable us to identify, and correct, the faults when things go wrong. In saying this I have less in mind the organic diseases of the stomach—ulcer, cancer and pyloric stenosis. These are relatively well understood. We are able to make positive diagnosis of these, at least in their outspoken stages. We know that ulcers can be improved by certain treatments; that cancer can be palliated in cer-

tain ways, and that its cure must wait for the solution of the general problem of cancer; and that pyloric stenosis can be benefited by surgery. But the dyspepsias lying outside of these classes are less well known. This may be because they are only causes of discomfort and not fatal or disabling, except as they may contribute to the uncertain etiology of ulcer and cancer. Still it is unfortunate that we have not gained more control over them.

This fact has led me to attempt a reconsideration of the whole subject of disorders of gastric function, in the hope that it may bring to light some more definite conceptions, and lead to more effectual treatment.

I must admit at the outset that I am about to describe conclusions which are only tentative, not backed by scientific proof. But the situation is this: The clinical case is less adapted to exact observation than the laboratory animal; this being the case, it seems to me desirable that we should grasp at any suggestions from any sources that may be at hand, and at least test them for possible value. Many of the most reliable methods of medical treatment have been established without previous scientific explanation, and what we as clinicians most desire is an increase in our stock of measures that we can rely on to benefit our patients, even if we do not know with certainty why they succeed. To me the line of thought that I am about to describe has raised new possibilities, and it has seemed to me that patients treated according to these possibilities

*Read before the Kennebec County District of the Maine Medical Society, October 6, 1921.

have done better than they otherwise would have done.

The headings under which functional gastric disorders are described in the standard textbooks of today are essentially the same as those in vogue when I was a medical student twenty years ago. They are based chiefly upon chemical tests of gastric contents obtained by stomach tube. They have been allowed to stand in default of any better headings to take their place, in spite of the fact that most thinking clinicians have been disappointed in their hopes of finding complete explanations of their cases by means of gastric analyses.

The chemistry of gastric contents is now recognized to be but one source of evidence,—one to which we must pay some attention, from lack of more direct methods of examination, but still one with many limitations. It is a little as if we were forced to make diagnoses of diseases of the nasal cavity by the examination of nasal secretions without direct inspection. Disorders of motility as well as those of secretion were also studied by stomach tube methods, particularly in the early days of gastro-enterostomies some fifteen years ago, and more recently by the fractional tests. X-ray methods have given us additional light on these, but the x-ray's contributions have been less valuable in functional than in organic diseases. In the practice of today it is too often the case that the physician at once orders a gastro-intestinal x-ray series and, when this is reported as "stomach and duodenum negative," sets the patient down as one of "gastric neurosis," and treats him empirically as would have been done a century ago. Recently there has been a tendency, following certain teachings of physiology, to emphasize the psychic influences as bearing on digestive disorders. These are of unquestionable importance, but in my opinion should not be allowed to exclude the consideration of other factors. Other facts of physiology also raise the possibility that internal secretions may be brought into relation with some disorders. But in all these attempts to classify patients complaining of their stomachs in accordance with objective features, from chemical tests to psychic deviations, too little effort has been made to bring all available evidence, including a careful history, to bear, so as to try to connect the patient's symptoms with definite abnormalities of physiology.

I have, therefore, tried first to fix clearly in my mind the chief facts of the physiology of normal gastric digestion, cleared so far as possible from confusing details, and, with these facts in mind, to go over one by one the common abnormal sensations and objective findings from all sources in cases of dyspepsia in the hope of arriving at more definite conceptions as to the origin and mechanism of production of these symptoms. As a result, I have evolved certain theories which seem to me plausible and of value if they are true. Let me repeat that they are still far from scientific proof that that I am de-

scribing them at this stage only in the hope that you will be interested to hear them as possibilities, rather than as established facts, and that you may be willing to aid me in putting them to the practical test.

The stomach is a bag-like organ, provided in order that meals taken at convenient intervals may be stowed in it, to await the gradual completion of their digestion and passage on to the intestine. It is attached to the lesser omentum on its lesser curvature, but this attachment is normally under little tension, since most of the weight of the stomach and its contents is supported by the gas-distended coils of intestine below. It is lined with a mucous membrane which, as Beaumont showed nearly a century ago, is pale while at rest, but pinkish from increased circulation during digestion. It has muscular coats, most active in the pyloric portion, and the whole is covered with peritoneum. Food enters by the cardiac orifice by deglutition, and chyme leaves by the pylorus in jets under a special mechanism to be described later.

Fasting, the stomach is contracted to small volume, but still contains air and a little fluid. When food is received by deglutition, the stomach automatically expands by relaxation of its muscular coat, so that there is no increase in internal pressure. For normal digestion, the food should have normal preparation for entering the stomach by being masticated and mixed with saliva, until it is a semi-fluid pulp, easily miscible with gastric secretion. The mass of the meal gravitates to the lowest portion of the stomach, and above the horizontal level of its surface lies the so-called "gas bubble," composed of air previously in the stomach and air from froth swallowed with the food, together with small amounts of gases of fermentation. I want to emphasize the normal presence of this air-bubble, which I shall have cause to mention later. The fact that most x-ray plates are taken with the patient horizontal, so that the air-bubble is hidden, causes us sometimes to forget its existence. After the entrance of a meal, peristaltic contractions appear in the pyloric portion. The pyloric portion also secretes pepsin-hydrochloric acid. Thus the contents of the pyloric portion are churned and digested, while the contents of the remainder of the stomach passively await their turn. The pressure within the stomach, particularly in the fundus, is only slightly positive. The automatic relaxation of the stomach as each bolus is swallowed prevents increase of internal pressure as a normal meal is ingested. But one point that I am attempting to establish is that a secondary mechanism exists to prevent elevation of intragastric pressure. I believe that the air-bubble of the stomach is provided for the useful purpose that if at any time intragastric pressure rises it can be relieved by the act of belching. Belching, when without effort, it seems to me, should be considered a normal process, serving to maintain normal intragastric pressure. Difficult belching, occurring only un-

der high pressure, I regard as an abnormality of this process, to which I shall return later.

The mechanism of the pylorus as described by Cannon is another subject to which I shall have reason to return. Briefly stated, the appearance of free hydrochloric acid on the gastric side of the pyloric sphincter is the signal for its momentary relaxation, so that a jet of acid chyme is passed into the duodenum. With the passage of this jet of acid chyme into the duodenum, the pylorus closes, and remains closed until the contents of the duodenum are rendered no longer acid, by neutralization of the acid from the stomach by the pancreatic juice, the bile and the duodenal secretion. Only when the contents of the duodenum are no longer acid can another jet of acid chyme pass out from the stomach. Thus the emptying of the stomach occurs through a series of momentary relaxations of the sphincter; and each relaxation can occur only when both of two requirements are met: first, there must be present free hydrochloric acid in the chyme on the gastric side, and, second, the chyme previously discharged into the duodenum must be no longer acid. It is true that there are certain probable exceptions to this rule, but that this mechanism is the rule seems well established.

The muscular activity of the stomach seems to be strangely subject to the influence of the emotions—as illustrated by Cannon's observations on cats in anger. This may be connected with the action of internal secretions such as adrenalin.

As to sensation from the stomach, it comes with surprise and doubt to most clinicians to hear evidence that the stomach is an organ without sensation. Seriously as we must take the evidence of Lenander and his followers to this effect, in clinical work it is evident to us all that in disease certain unpleasant or painful sensations seem to come from the stomach, and behave as if they originated in the stomach. This being the case, it is of little practical value to establish, as seems the best explanation, that the sensations which we have thought to come from the stomach really originate in the lower end of the oesophagus. For practical purposes, it seems to me just as well that we should consider that these sensations do come from the stomach.

Now with this skeleton outline of the physiology in mind, let us review the common abnormalities of gastric digestion, considering both the abnormal sensations of patients and abnormal findings of objective examination.

Ideal digestion should be completely without sensation. Few persons, however, are free from some sense of epigastric fullness after a heavy meal and a little belching without effort. These cannot be considered pathological.

But abnormal, according to its degree, is the sense of epigastric pressure that occurs in patients who complain of this epigastric pressure as a frequent source of discomfort, occurring not only occasionally, and not only after meals which

they admit to be excessive. This sense of epigastric pressure is often accompanied by a desire to belch gas, but an inability to do so satisfactorily, or without violent exertion. It is often associated with involuntary jerking contractions of the epigastric muscles and perhaps of the diaphragm, allied to hiccough. It may or may not be accompanied by regurgitation; it may occur with acid regurgitation and pyrosis, but this association is not constant. My hypothesis is that this symptom is due primarily to a disorder of the cardiac orifice, which prevents what I consider the normal easy relief of excessive intragastric pressure by belching, so that the fundus is subjected either temporarily or habitually to undue distention. This I have been able to demonstrate in a few cases by manometric readings obtained by stomach tube. The exact mechanism, however, by which belching is rendered difficult is not clear. An exhaustive study of the cardiac orifice and of the lower end of the oesophagus has been made by Dr. Harris P. Mosher of Boston, who finds that the obstruction to the downward passage of food or of the gastroscope, previously attributed to cardio-spasm, is better attributed to pressure on the lower end of the oesophagus by the liver, the left crus of the diaphragm or by peritoneal adhesions. But these cases of difficult belching have no symptoms of obstruction to the downward passage of the oesophagus. Some cause of a valvelike condition, whether by kinking or by lateral pressure on the orifice would explain the situation more satisfactorily. This must be left for further study to solve. I wish however, to emphasize that this symptom of a sense of epigastric pressure with difficult belching is a common source of discomfort which has been strangely overlooked in medical investigation.

In contrast to the feeling of epigastric pressure is the feeling of weight or dragging in the epigastric or umbilical region. This is most common in persons of poor nutrition, especially in women with weakened abdominal muscles, diastasis of recti, ventral hernias, etc., and often demonstrable ptosis of abdominal viscera. There is a probability that this symptom is due to tension on the lesser omentum, from deficient support of the stomach below. Abdominal bandages often give a sense of relief, but a more rational treatment to secure continued improvement is to apply measures to increase the tone of abdominal muscles, and to correct the body posture. Operative repair of ventral hernias may be considered. While this symptom may occur alone, it is often accompanied by others, especially those symptoms that go with deficient, rather than excessive, gastric function, as well as by manifestations of general physical and nervous debility.

Pyrosis, or heartburn, is perhaps the commonest form of gastric distress. It is a burning sensation referred to the epigastrium or to behind the sternum, which in the minds of those

who have it is most consistent with an inflamed or irritated state of the lining of the alimentary tract, rather than with a muscular contraction or with tension on attachments. It is similar in quality and in position to the sensation felt when hot or irritant substances are ingested. It is similar in quality to the sensation of burning or excoriation or inflammation of the skin or of the more accessible mucous membranes. We know that it commonly follows the ingestion of chemical or physical irritants (spices, alcohol, hot fluids), or the presence of fermentation or of high acidity in the gastric contents. It is this symptom which is the most difficult to reconcile with the teaching of Lenander and Mackenzie that the stomach is not endowed with true sensation. A possible explanation is that the seat of this feeling is really the lower portion of the oesophagus to which is subjected the same influences as the lining of the stomach. At present it seems impossible to settle this point conclusively and finally. But whatever the true origin and mechanism may be, the opinion seems warranted that the symptom means that the lining of the stomach, and presumably of the lower oesophagus as well, is being, or has been, subjected to influences unfavorable to it by its contents, and that the symptom will usually be benefited if the contents are rendered no longer irritating, either by the neutralization of acid by alkalies, or by evacuation as by vomiting.

Readers of Beaumont's classic observations on Alexis St. Martin, made through the opening following a gunshot wound that resulted in a permanent gastric fistula, can hardly fail to suspect that this sensation is to be connected with the dark red congested appearance of the mucous membrane of the stomach that resulted from stronger mechanical irritation, or on one occasion was explained by the terse note, "St. Martin was drunk yesterday." Without positive evidence pro or con, I consider it probable that the symptom of pyrosis is to be taken as the manifestation of such an irritated or inflamed condition of the gastric and probably of the oesophageal mucous membrane.

Now following out this tentative belief, let us consider what can cause such an irritated or inflamed condition of the mucous membrane. Here again we must fall back on indirect evidence, since the states of irritation or inflammation which we are supposing must be limited to states of hyperemia not demonstrable post mortem:—suppurative or phlegmonous gastritis we know to be rare. By analogy with other mucous membranes we may suppose that the gastric mucous membrane may be affected by mild inflammations of the catarrhal type, by physical influences, heat, cold and mechanical injury, and by chemical influences. These possibilities receive support from clinical experience. We know that a tendency to pyrosis may occur in the acute slightly febrile disease that we call acute gastritis, with the onset of so-called catarrhal jaundice, in catarrhal inflammations of the nose

and throat and in fevers. From physical influences such as heat, the stomach is largely protected, since burning hot and scratchy substances can seldom pass the oesophagus.

But by far the most fertile source of pyrosis seems to lie in chemical action upon the stomach of its contents. These chemical causes we may separate into two large divisions,—irritants ingested from without, and irritants developed within. Of the chemical irritants from without may be mentioned corrosive poisons taken by accident or by design, irritant drugs, strong spices and alcoholic drinks. By irritants developed within I mean the products of fermentation, and pepsin-hydrochloric acid in concentrations beyond the tolerance of the patient's stomach.

The first class, gastric irritations from irritants ingested, either once or habitually, can occasion no dispute. Irritation from fermentation is rarely of importance except in connection with pyloric stenosis. But cases complaining of pyrosis when the cause of the irritation seems to be pepsin-hydrochloric acid I believe to have been hitherto misunderstood. I shall return to them later after I have touched on other symptoms.

Pains attributed to the stomach are of three chief varieties, which I may call, for the sake of brevity, the ulcer-like, the cramp-like, and the dragging pains. The first, which I have called ulcer-like, for want of a better term, and from its frequent association with anatomically proved ulcers, is sharp and usually severe. Certain patients have agreed to its similarity to the pain that results from the disturbance of fresh wounds of the surface of the body. Its occurrence is closely related to that of pyrosis, of which it may perhaps be an extreme degree.

Cramp-like pains are as a rule clearly associated in the minds of the patient with muscular contractions or movements of the stomach—"cardiospasm" in connection with swallowing or belching, a general cramp in connection with vomiting, or a cramp-like pain to the right of the median line attributable to pylorospasm.

Dragging pains occur with distention or with gastroptosis and are merely exaggerations of the discomfort from sense of weight described above, and are probably due to tension on attachments. All of these pains are to be distinguished from those of gall-stones, appendicitis, etc., by their appearance, or aggravation, in definite relation to eating or to movements of the stomach.

Difficult or violent belching as a symptom has been mentioned. I neglected above, however, to speak of the noisy habitual belching that occurs in certain patients as an obstinate neurosis. This probably always is accompanied by air-swallowing or eribbing, although most patients deny that they are conscious of it. In one patient I have shown, by a tracing of intra-gastric pressure, that the act which at first seemed to be only one of belching was in reality a double action of suction and expulsion.

Regurgitation I believe to be the equivalent of belching, with the difference that for its occurrence the surface of the fluid contents of the stomach must have risen to cover the cardiac orifice. This may be the result of changes in position or form of the stomach, by distention from excess of non-gaseous contents, by pressure of organs below as in pregnancy, or by diminution in the volume of the gas-bubble. Simple regurgitation of unchanged food is of little moment, except as a sign of overeating. Regurgitation of contents tasting of fermentation are of little more importance, unless associated with other evidence of pyloric stenosis. Here antifermentatives of the betanaphthol class may be of some value, but more is to be expected from reducing diet, particularly in its fermentable elements, and attention to mastication. But of far greater importance is the regurgitation of irritant contents containing hydrochloric acid. This is usually accompanied by pyrosis—the familiar “sour stomach and heartburn.” These are the presenting symptoms in perhaps the commonest type of severe dyspepsia. The patient eats at each meal as much as he dares, but regularly, soon after, follows the development of heartburn, with more or less belching and acid regurgitation. There is a continued period of misery, in which the patient is conscious that the contents of his stomach are hurting him, and he wishes that they could pass on. In milder instances, after an hour or so the wish is granted, and the patient is conscious that the offending contents have left the stomach and ceased to trouble him. In severer instances the patient takes sodium bicarbonate, and has temporary relief. If this is not at hand he induces vomiting, or vomiting may occur spontaneously, and after this he feels better. I want to dwell somewhat upon the point that the patient with sour stomach and heartburn feels that he is suffering from delay in the passage of the meal from the stomach; that acid contents are retained in the stomach and are the cause of his trouble, and that if they would pass on more quickly he would be the sooner relieved. This conviction is clear in patients’ minds, and probably most of us have, at one time or another, had the sensation ourselves enough to agree with this conviction, that the distress accompanying sour stomach and heartburn would be benefited if the stomach could be made to empty itself more rapidly.

Nausea and vomiting are often considered together, and come prominently to mind when a list of gastric symptoms is mentioned. Still it is well to emphasize that nausea, and vomiting preceded by nausea, occur perhaps most frequently in conditions where the stomach is concerned only secondarily.

Nausea is to be regarded as a sensation of the central nervous system excited by a wide range of exciting causes: toxic, as in uremia, in pregnancy and in tobacco or apomorphine poisoning; reflex, as in diseases of the throat or labyrinth,

etc. Nausea is frequent in circumstances which cause inhibition of gastric digestion, as in seasickness, migraine, disgust from sights or odors, and other emotional influences.

Vomiting, also, may be not primarily of gastric origin, as in brain tumor, and in the causes of nausea mentioned above. Vomiting associated primarily with abnormal gastric function may be divided into two classes as follows: first, vomiting associated with inhibition of gastric digestion; and second, vomiting due to the need of getting rid of harmful contents. As to the first type, I believe it to be a fact which will coincide with your observations in practice, that, whenever for any cause the stomach finds itself unable to make progress with the digestion of a meal, it gets rid of it by vomiting. This is the type of vomiting which follows overeating in children, or overeating in fatigue, pain or excitement. This vomiting is preceded by nausea, and the vomitus contains food unchanged by digestion. The second type of vomiting is the culmination of a period of pyrosis or pain, due to poisons, drugs, or excess of acid contents, and is usually the result of the patient’s more or less conscious desire to empty the stomach. There may be little or no nausea; the vomitus is acid and irritating but undigested food is less in evidence.

The appetite is of considerable value as a diagnostic symptom. As a rule, although with exceptions, poor appetite goes with disorders of deficient functional activity, and good appetite with disorders of the hyperacid types.

Sodium bicarbonate is such a household remedy that “soda-relief” is a symptom often obtainable in history. When present it means one of two things—either relief by neutralization of acid, or relief by effects on the gas-bubble from its effervescence. Testing the effect of magnesium oxide is of greater value, since this can relieve only by the neutralization of acid.

So much for analysis of symptoms.

Physical examination gives less positive information in functional gastric disorders. The states of nutrition and of muscular development, the psychic attitude or temperament, and the condition of the teeth are of importance. Otherwise the examination is of value chiefly in excluding organic disease and non-gastric diseases which may give gastric symptoms—tuberculosis, syphilis, gall-stones, appendicitis, nasopharyngitis, pregnancy, nephritis, lead poisoning, tabes, etc.; also examination may reveal contributing causes of debility, such as gynecological and genito-urinary disorders.

The special tests of the laboratory and x-ray room should be made if possible. But in the case of tests of gastric contents, except for tests for bleeding ulcer, cancer, or pyloric stenosis, the results are to be taken only as contributory evidence in most cases. Occasionally complete absence of hydrochloric acid and of pepsin will reveal achylia gastrica. A few cases will show excessive amounts of gastric juice,—indicating

hypersecretion. Other cases will show deficient or high acidities in accordance with clinical symptoms. Others will show normal acidities in spite of clinical symptoms, or conflicting results may appear on different occasions. In the sour stomach cases there may be a delay in emptying. Excess of mucus may be of importance. But I feel that efforts to make diagnoses according to gastric contents rather than by general clinical pictures have often confused rather than cleared our vision.

In the stools, aside from tests for occult blood in possible ulcers or cancers, the chief test is inspection for evidence of imperfect mastication. I once found almost whole pickles in the stool of a girl who said she was careful about mastication.

X-ray tests as at present applied are of value chiefly in the detection or exclusion of organic disease. They are, moreover, beyond the reach of many patients. Great as has been the service

x-ray methods in gastric diagnosis, I must protest against the present tendency to order a barium series in all gastric cases before full consideration of, or to the neglect of, other sources of evidence. In the future, however, I hope the x-ray examinations may be of additional use, if used less mechanically, and read with more attempt to correlate findings with the individual clinical features of each case.

So far, in a somewhat rambling fashion, I have mentioned and commented on single symptoms and abnormal findings.

Now, if you have been able to follow my somewhat disconnected discourse, let us consider whether, in the occurrence of these symptoms, we may not find suggestions of abnormalities of function that we may recognize as fitting groups of cases, and that give hints as to their treatment. One such group I have already tried to point out—that characterized by epigastric pressure and difficult belching. This condition I have above attributed to a valve-like closure of the cardiac orifice. For my own use I have coined the name "valvular cardia" by which to refer to it. Marked cases of this are not common, although I have treated three very striking ones on my service at the Boston City Hospital this year. There was reason to suspect that habitual overeating may have been a contributing cause. Minor cases of this "valvular cardia" are fairly common, and may be little inconvenienced unless other disease is present, but may complain much from distress from this source when it occurs in association with "hyperacidity" or ulcer.

As for treatment, if the valvular action of the cardiac orifice is due to organic relations of the liver, the left crus of the diaphragm and the last portion of the oesophagus, we have at present no direct way of correcting it. If, on the other hand, kinking by pressure of a distended fundus is to blame, there is some hope of improving matters by avoiding such distention. Moreover, if we despair of influencing the

cardiac orifice, our best course is to place the patient on a diet which will so far as possible obviate the need of belching,—and this, fortunately, is the same diet which tends least to distention of the fundus. To this end it is reasonable to give a diet which contains an adequate nutritive value in the smallest possible bulk of digestible substances, and, further, to provide that the day's total shall be taken in six divisions instead of three. In minor cases a simple plea for self-restraint in the amounts eaten may do much good. In more marked cases I have begun with starvation for from twelve to twenty-four hours to allow the stomach to contract to its resting state, followed by a régime of three small meals and three light lunches a day, composed of bread and toast, milk-toast, rice, cereals and baked potato with cream or a little milk, soft eggs, meat and fish (not fried), simple puddings and custards and the like, with emphasis on slow eating and thorough mastication. This plan when followed has resulted in improvement which later permitted a gradual return to a normal diet. In one case an immediate and marked return of symptoms followed a premature unauthorized departure from this régime.

In a larger, but less homogeneous, group, it seems to me that we can include cases whose disorders come under the general head of deficient gastric function. These are the cases that are apt to have a sense of weight or dragging in the epigastrium, anorexia, nausea, vomiting of undigested food, often with headaches and symptoms of general debility. They often show visceral ptosis and poor muscular development. Their gastric contents tend toward subnormal acidities and delayed motility.

For this group I would suggest the term "gastric asthenia," since the term gastric neurosis has been so loosely used in the past as to have lost its proper meaning and to include all dyspepsias without organic disease, and demonstrable subacidity is not sufficiently constant to justify naming the whole class for it.

These cases are often difficult to improve, but there are a number of directions from which they may be attacked with some hope of success. While each case is to be considered separately, as a group all are probably manifestations of a general debility which may be due to a variety of causes, some remediable. Cases with ptosis, poor posture or subnormal muscular development and tone may often be improved by orthopedic or physical therapeutic methods. Special causes of discomfort indirectly contributory, such as hernias, torn perineums, etc., may be corrected by surgery. The question of eye strain is always to be considered.

A change of environment, by a vacation or a visit, or a change to a more congenial occupation, may be followed by striking improvement. It is important to develop a mental attitude of cheerfulness and confidence; interest in a new recreation may help. The habits of life and eating are to be gone into carefully. Thor-

ough mastication is to be emphasized and three sufficient meals at regular hours each day are to be insisted upon, with regular light lunches between meals when there is undernutrition. For patients who do not eat in their homes, a good family boarding house is far better than a restaurant or lunch counter. The diet should be a general one composed of such articles as would be allowed a healthy older child; prejudices and experience of the patient may be consulted somewhat but not too much. In such cases bitter tonics before meals and dilute hydrochloric acid after meals may be of service, but more is to be expected from improvement of environment, habits, mental attitude, diet and general physical condition.

Achylia gastrica I class in this group for the purpose of treatment, except that proteins in the diet are to be restricted and selected with a view to ready passage of the stomach.

As a third group I class together what I consider cases of gastric irritation, under three subheads: catarrhal, toxic, and hyperacid.

Whether catarrhal gastritis, analogous to mild inflammatory states of the mucous membranes of other organs, is more common than we can prove is uncertain. It has been taught in the past that the diagnosis of chronic catarrhal gastritis is to be made only when there is a distinct excess of mucus in the gastric contents which is comparatively rare. Yet there are cases complaining of symptoms of gastric irritation that cannot be explained by the ingestion of irritants from without, or by excess of acid developed within. Such cases have sometimes been called gastric hyperaesthesia, but to my mind it is not disproved that some at least may be due to milder forms of catarrhal gastritis.

The treatment is a diet as free from irritant qualities as possible, and magnesium oxide or milk of magnesia sufficient to neutralize acidity when acidity symptoms are present. By non-irritant diet I mean a diet excluding three things. First, spices, pepper, and excess of salt or other strong flavors; second, coarse grained solid particles, such as green corn and string beans; third, substances which tend to stimulate acid secretion such as meat extractives and products of frying. Every mouthful should be masticated carefully and no meal should be large in amount.

Of states of gastric irritation due to irritants ingested, the best known is that due to alcohol. They are to be treated by cutting off the irritant concerned, a period of starvation or underfeeding, and then a gradual advance, through the bland diet mentioned above, to a normal diet. Bile preparations to be mentioned later, should not be given while alcohol remains in the stomach.

Fermentation as a source of gastric irritation is greatly exaggerated in the popular mind, beyond the probable facts. Probably most distress attributed to fermentation is in reality due to hydrochloric acid. Still vomitus with

odors of acid decomposition is occasionally met. Lack of convenient clinical tests for acetic and similar acids may be the cause of our little knowledge of their occurrence. Where vomitus or matter regurgitated is described as having the taste of fermentative decomposition, the diet should be reduced particularly in sugars and sugar-containing fruits and fluids, including milk, and emphasis should be laid upon slow moderate eating and careful mastication. Pyloric stenosis is to be suspected until excluded by proper tests.

But by far the most important type of dyspepsia is the group complaining of sour stomach and heartburn where the condition seems to be one of irritation of the stomach by pepsin-hydrochloric acid developed within. These cases have commonly been grouped under the term "hyperacidity." Surgeons have shown that many of the severer ones have gastric ulcer, and it is probable in my opinion that this condition of hyperacidity is a direct step in the development of gastric ulcer. Still I am not convinced that ulcer is present in all. Certainly there are cases in which ulcer can not be demonstrated, and there are many milder cases in which exploration, or even bed treatment, will not be consented to or advised.

Let us consider again the symptoms and objective findings. The patient after each meal complains of pyrosis and often acid regurgitation. He feels that something is burning him inside, and that it is something which ought to pass out of his stomach by the normal route, but is slow in doing so. He gets temporary relief by swallowing substances which neutralize acid. He gets relief by inducing vomiting. The vomitus contains hydrochloric acid in high normal amounts; the vomitus is largely fluid so that it would flow out of the stomach readily if the pylorus would allow it to. Now why do these acid contents remain in the stomach causing distress, instead of passing on? May not the trouble be this: not an increased secretion of pepsin-hydrochloric acid, but rather a harmful mechanism by which pepsin-hydrochloric acid is hindered from passing out of the stomach, and is so forced to accumulate? May not the cause of gastric ulcer be the abnormally long contact of this digesting fluid with the mucous membrane, breaking down its normal immunity; and may not the failure of ulcers to heal be due to their being daily eroded by this fluid?

Such considerations led me some years ago to suspect an abnormal mechanism of the pylorus in these cases. Referring back to the normal mechanism which I have described we find that one signal for the opening of the pylorus is free hydrochloric acid on its gastric side. That requirement in these hyperacidity cases is obviously met. But the second requisite is the neutralization of acidity on the duodenal side. May not the fault lie here? The neutralization of acidity in the duodenum is affected by three

secretions: the pancreatic juice, the duodenal secretion and the bile. The first two we cannot greatly influence, but we know that the flow of bile can be greatly increased by the giving of bile or bile salts by mouth. I therefore made a trial of giving ox-bile in salol-coated pills to certain patients who had sour stomach and heartburn, only temporarily relieved by soda or magnesia. I was gratified to find that they soon became free or almost free of symptoms and could be kept so for long periods by continuing to take the ox-bile in reduced doses. Most of them were ambulatory cases of dyspepsia, not of great severity, but a certain proportion, from the severity of their symptoms, from history of hematemesis, or from the findings at previous operations, undoubtedly had ulcers. I published these results in June, 1913.¹ Later in the same year Glaesner² of Vienna announced similar results at an international congress in London.

Glaesner's report differed from mine in its theoretical considerations and in that he dealt only with cases with positive diagnosis of ulcer. He found that a large proportion of these ulcer cases were benefited by bile-salt treatment, and that in the cases which failed to improve, and were therefore operated upon, the ulcers were found to be of the chronic callous penetrating type unlikely to be healed by any medical measures.

Since then there have been no more publications on the subject by other authors, but I have heard from various sources that some clinicians are using bile preparations which I recommended in these cases with success.

My present belief is that bile preparations are of great value in the milder cases of "hyperacidity" not warranting the diagnosis of ulcer; that if used early they may prevent or abort ulcer; that in any case of ulcer they deserve a trial, and that in ulcer if they fail, when used in connection with rest in bed and an ordinary ulcer régime, no permanent relief is probable without surgery.

The type of preparation of bile or bile-salts used is of importance. Solutions of bile-salts are irritant to the stomach. The bile must therefore be given in pills, in salol or other coatings that will not dissolve in the stomach. I will mention here two that are satisfactory—Pil. Bili-salol, made by Fabry in Boston, and Glyco-tauro tablets of Hynson & Westcott, Baltimore. Some other preparations are undoubtedly equally good, but others not properly coated may defeat their purpose by causing preliminary irritations. Also since salol is soluble in alcohol they must not be given to patients taking alcohol.

In milder cases I give three pills three times a day before meals for a week and then the same dose every Sunday only. With this I emphasize mastication but allow any simple normal diet, avoiding only excess of amount.

In cases of ulcer I try to combine the above with rest in bed and a modified Lenhart diet,

but I have had cases of undoubted ulcer that have refused this, and have done well on the simple ambulatory treatment.

There is one more group of cases to be mentioned briefly for completeness,—that known as hypersecretion, continuous or intermittent. In these the stomach fills with acid secretion more or less without relation to food, and has to be emptied by vomiting or lavage. The continuous type is rare; the intermittent form, with only occasional paroxysms, is less uncommon.

Here, too, I think we must assume a harmful closure of the pylorus, for otherwise the excessive secretion of the stomach would drain into the intestine. In the few cases that I have had, the bile treatment has not seemed to succeed, so that I suspect that, in these, pyloric spasm, neurotic, reflex or other, may be present. This is a problem which must receive further consideration in the future.

In summary and conclusion let me reiterate the following points:

First. A hitherto little-recognized source of gastric distress exists in an abnormal valve-like action of the cardiac orifice which deserves further study.

Second. Patients complaining of sour stomach and heartburn *not* due to hypersecretion or to catarrhal or to alcoholic gastritis are frequently benefited by bile or bile salts when given in coatings which will not be dissolved in the stomach.

Third. For medical progress we clinicians should not depend solely on the fully developed teachings of laboratories and hospitals, but should constantly follow and ponder over the teachings of the medical sciences in relation to our own observations in practice with the hope of developing new practical methods.

1. Palfrey, F. W. "Administration of Ox Bile in Treatment of Hyperacidity of Gastric and Duodenal Ulcer," *American Journal of Medical Sciences*, June, 1913, CXLV, No. 6, p. 796.
2. Glaesner, K. "Ingestion of Bile as Remedy for Gastric Hyperacidity," *Wiener Klinische Wochenschrift*, Sept. 25, 1913, XXVI, No. 39, p. 1559, and "Bile Salts in Treatment of Gastric Hyperacidity," *Medizinische Klinik*, Feb. 1, 1914, X, No. 5, p. 191.

AERATION OF THE POSTERIOR ACCESSORY SINUSES IN ACUTE OPTIC NEURITIS.*

BY LEON E. WHITE, M.D., BOSTON.

THE pleasure in presenting a paper before this distinguished Society is mixed with fear and trepidation lest these meager gleanings, from a study of infections in the accessory sinuses as a cause of optic neuritis, may not be sufficiently worth while.

Beginning this work some ten years ago, I was stimulated to continue by the remarkable results obtained in early aeration of the sinuses on the one hand, and on the other by the pitiable and pathetic spectacles of permanent blindness

*Read by invitation before the Joint Meeting of the Sections of Ophthalmology, Rhinology and Laryngology, New York Academy of Medicine, on October 26, 1921.

which might have been prevented. During these years there have been times when adverse criticism and scepticism have tempted me to abandon the field, but the continued expressions of disbelief as to the advisability of operating unless marked pathology was evident in the nose, convinced me that it was my duty to stick to this investigation. To the kindness and encouragement of Dr. Mosher I am deeply indebted. As Chief of the Nose and Throat Department of the Massachusetts Charitable Eye and Ear Infirmary, he has permitted me to handle the cases referred from the ophthalmic side for this condition which has enabled me to study a large number and to follow them year after year. By thus keeping in touch with these cases it is possible to check up the early results and to determine whether the lesion is peripheral or central. Dr. Quackenboss and Dr. Spalding, the Ophthalmic Chiefs, and Dr. Verhoeff, the Pathologist, have rendered great service, as well as many others on both the aural and ophthalmic staffs.

Certain phases of this subject I have already considered, such as the anatomical relations of the optic nerve, the literature, the diagnosis, the prognosis, the etiology, pathology, etc. In each paper there has been a report of the cases followed since the preceding one, so that the one appended to this article is my thirty-fourth.

A brief résumé of the work done to date may be of interest. The relations of the optic nerve to the accessory sinuses has been carefully worked out. In 1886 Berger and Tyrman reported their findings in the examination of the differences in the partition wall between the optic nerve and sphenoidal sinus and noted that the bony wall separating the nose from the sinus was frequently of only tissue paper thickness. Onodi, in 1908, said: "For ten years I have been investigating the most delicate construction of the accessory cavities and the relation of the optic nerve to them." His work was so thoroughly done that later research has been largely a confirmation of his findings. In 1911 he published an atlas with natural size plates showing 38 different morphologic findings on the relations of the optic nerve. Let me quote one paragraph: "Our observations have shown that the wall between the last ethmoid cell and the canalis opticus is nearly always as thin as tissue paper; dehiscences in the walls of the accessory cavities have been found, there the diseased mucosa may come into direct contact either with the dura mater or the optic nerve sheath." Normally, according to *Loeb*, "the optic nerve may be described as passing externally from the chiasm along the roof or lateral wall of the sphenoid and in close relation with the ethmoid labyrinth only at the posterior external angle of the last cell. . . . Where this normal relation exists there is only the slightest possibility of any danger to the nerve in suppuration confined to the ethmoid cells. . . . But where the posterior ethmoid cell replaces a portion of the sphenoidal sinus, the optic nerve runs close to, and

along the external wall of this ethmoid cell (as in two of the thirty specimens he studied) and its vulnerability is correspondingly heightened in view of the greatly increased portion exposed."

At the 1921 meeting of the American Medical Association *Dr. Schaeffer* gave a lantern demonstration of these relationships and showed many beautiful and instructive specimens. From his book on "The Nose and Olfactory Organ," the following is quoted:

"It is essential that the intimate anatomic relationships which exist between the paranasal sinuses and the optic nerve and commissure be understood by ophthalmologists and rhinologists. It is established that disease of the paranasal sinuses may lead to an optic neuritis, even to blindness. Of the paranasal sinuses, the sphenoidal and the posterior ethmoidal especially concern us in this connection. . . . Indeed, for a considerable distance from the eyeball, the optic nerve is so far removed from the paranasal sinuses that very intimate relationship is precluded by the intervention of a considerable mass of orbital fat. However, as the optic nerve approaches the orbital apex and passes through the optic foramen to the optic commissure, very intimate relationships exist between some of the paranasal sinuses and the nerve and its commissure. . . . The optic nerve pursues a course ventralward from the optic commissure along either the roof or lateral wall of the sphenoidal sinus. Frequently a posterior ethmoidal cell is more or less intimately related as well. After the optic nerve passes beyond the vicinity of the posterior ethmoidal cells, it diverges more and more from the ethmoidal field and is no longer in intimate relationship with the other ethmoidal cells."

From the investigations of these men you will see it has been demonstrated that the optic nerve may be in close relationship to the sphenoidal sinus and the posterior ethmoid cell. The sphenoids and posterior ethmoids are therefore the only sinuses in intimate relation with the optic nerve, and to reach the tissue adjacent to the nerve the direct and logical route would be through these structures and not through the entire ethmoidal labyrinth.

The literature on accessory sinus blindness is voluminous and dates back to the observations of Beer in 1817. He says in an article on "Vicarious Blindness from Suppressed Snuffles, without Evident Accumulation of Mucus in the Frontal Sinus,"—"that the recognition of this form of amaurosis is greatly facilitated by a history of a severe and suddenly suppressed cold in the head immediately preceding the ocular complication." He further says that "the cases all do well if one is able to re-establish a copious discharge of mucus from the nose."

In 1886, *Berger and Tyrman* gave a brief review of the previously reported cases of blindness, some 26 in number, arising from sphenoidal disease.

In 1915, Stark collected 88 cases from the literature. Since then the number reported has rapidly increased, but time only permits mention of some of the contributors:—Onodi, Sluder, Loeb, Knapp, Holmes, deSchweinitz, deKleyn, Berger, van der Hoeve, Halstead, Stark, Beck, Skillern, Vail, Posey, Bordley, Smith, etc.

While some writers recognize that it is not always possible to diagnose the nasal condition responsible for the optic neuritis, and have advised operating even if the nasal findings were negative, the general impression prevails, I believe I am justified in saying, that a purulent infection, even if unrecognized, must exist. So persistent is this belief that I am not infrequently told the accessory sinuses were eliminated because the roentgenograms were negative.

The *diagnosis* is naturally of major import. The symptoms in the ordinary case of acute optic or retrobulbar neuritis are quite typical. Associated with the loss of vision there may be discomfort about the eye or lameness on moving it. Occasionally there is slight exophthalmos, this condition indicating an inflammatory process in the orbit. Pupillary changes and ptosis are found occasionally. There is frequently a central scotoma for colors, enlargement of the blind spot and contraction of the fields. The value of quantitative perimetry has been emphasized by Walker and is of great assistance in making a differential diagnosis, but as many patients have not even light perception, these charts are not always obtainable. The patients frequently remember that things at first were blurry when looking straight ahead but comparatively clear when looking sideways. Changes in the fundus are of great value, varying as they do from normal to a commencing pallor in some cases and in others to a marked redness and swelling about the nerve head with engorgement and tortuosity of the retinal veins. It is essential that these inflammatory swellings be differentiated from those due to intracranial pressure.

The anterior portion of the nose may, and frequently does, appear practically normal. I believe the *one vital point* to determine in the nasal examination is the *size* and *position* of the middle and superior turbinates. Do they block the ventilation of the posterior sinuses? Is there impaired aeration? It takes but slight obstruction to interfere with the ventilation and the mistake is frequently made of expecting to discover marked changes.

There has been much controversy over the term so frequently used—"negative nasal findings." While pleading guilty to the use of this term, it was done to impress upon the rhinologists that but little was evident on inspecting many of these noses; also because several of my cases had been examined and reported as negative even when to me they presented evidence of blocking. One case in particular had a marked deflection of the septum which wedged the middle turbinate so firmly between the ethmoidal labyrinth and sphenoid that there could be no question whatsoever

of its blocking, and because pus was not evident and the x-rays negative, the report was made that there was no accessory sinus involvement. This man developed optic atrophy and as the vision continued to fail he was referred to me a year later when I removed the middle turbinate. Following this there was improvement but only slight (from 20/200 to 20/100). The term "negative nasal findings" does not mean that the nose is normal. Normal noses do *not* produce optic neuritis, but optic neuritis can frequently be produced from noses which to some examiners seem normal. It is doubtful if any other field in surgery requires greater discrimination in making a differential diagnosis. I should hesitate to operate on any case where ventilation was possible by shrinking the tissues in the region of the posterior sinuses.

One can generally determine by the use of cocaine and adrenalin whether there is a temporary swelling or a chronic enlargement of the middle turbinate. Deflected septa with crowding of the chronically enlarged middle turbinates are the most usual findings. The following is quoted from *Stark* who expresses well the thought I wish to convey:

"From a nasal standpoint we must not expect to find the common symptoms of sinus infection, pus, polypus, history of nasal discharge, etc., as we are dealing with a closed sinus; otherwise we should not have pressure. . . . The deflected septum and middle turbinate tightly pressed against the lateral wall should always be suspected."

Over half the cases give a history of a recent coryza or a prior influenza, but in a few there is no history of any nasal infection. Roentgenograms are usually disappointing. Occasionally slight blurring but practically never marked evidence of sinus disease.

Dr. Macmillan, the radiologist at the Infirmary, summarized the findings as follows:

"The radiographic examination in this group of cases was rather disappointing from the standpoint of one seeking definite pathology. In a number of instances, no clouding could be made out in the sphenoidal or ethmoidal cells; in others a slight blurring of the cell partition was evident, while in none of the cases was there definite demonstrable pathology. There was no evidence of involvement of either the frontal sinuses or the antra in any instance."

The diagnosis many times must be made largely by exclusion. In all cases the patient should undergo a thorough physical and neurological examination. One should consider in turn blood, urine, teeth, tonsils, hysteria, pellagra, lues, tobacco, alcohol, lead, arsenic, quinine, etc. While investigating *time* is a very important element and it is essential that needless delay be not encountered. Practically all necessary tests can be made within 48 hours. Pituitary disease, brain tumor and multiple sclerosis, while not usually producing such *sudden* loss of vision, must always be borne in mind. As a matter of

routine the various cranial nerves and lobes of the brain are tested. Not a few cases of brain tumor, Dr. Cushing informs me, have had various nasal operations before they were correctly diagnosed. This careful investigation has prevented unnecessary nasal operating in several cases I have seen in consultation. One should systematically go over each case before operating and convince himself that the eye condition in all probability originates from the accessory sinuses.

ETIOLOGY.

The earlier writers considered the mere presence of pus in the sinuses the all-sufficient explanation for the disturbance about the optic nerve, and while this may undoubtedly be the cause in some instances, it is by no means the usual or only one. The nerve is ordinarily protected by the barrier thrown out by inflammatory processes so that it is rarely involved unless through some anatomical abnormality. In only a small percentage of my cases has pus been found. Hyperplasia has been emphasized by others as the chief cause, and while hyperplastic tissue may involve the posterior sinuses, it has seemed to me from my study of the sections and cases that it would better be considered a predisposing factor rather than the principal etiologic condition. Hyperplasia undoubtedly renders the sinuses more vulnerable. The etiology seemed to be explained in many of my cases by the size and position of the middle and superior turbinates. Poor ventilation and faulty drainage appeared the more important predisposing factors. The theory advanced by me in a paper read before the "Triological" Society in 1921 is that these superior turbinate structures high up in the roof of the nose gradually become enlarged and obstructive. There is an increase in the basal connective tissue, *i. e.*, a certain amount of hyperplasia, so that eventually the posterior sinuses are practically blocked. Then some infection takes place in these sinuses which, if not already occluded by the hypertrophied turbinates, most readily become so by a very slight increase in their size. Then an inflammatory process commences. This is generally of the exudative but non-suppurative type. The swelling and infiltration incident to it spreads by continuity of tissue to the optic nerve, or (if the sinuses are completely shut off) there may be a closed empyema with infection to the nerve through the circulation,—not in all cases, of course, but in those which, through some anatomical peculiarity, are rendered especially vulnerable. The infection may be confined to the region superior and posterior to the middle turbinates, thus explaining why so little is seen on inspection and why roentgenograms show but slight, if any, changes, *i. e.*, only what would be expected from an acute non-suppurative inflammatory process.

PATHOLOGY.

While it would be most gratifying to have some comprehensible explanation of the path-

ology in the posterior sinuses, it is vastly more imperative that the results of appropriate treatment be given just weight. The unfortunate victim with optic neuritis wants his vision. If aeration of the posterior sinuses offers the best chance for recovery, why not aerate, even though one fails to find pus or marked disease? Later, if need be, let us differ as to why recovery takes place so speedily when so little is discoverable at operation. As *Loeb* says, "the ready recovery . . . is as convincing of their nasal origin as anything could be, short of autopsy findings." Those demanding an explanation of the pathology by the examination of the tissue, either macroscopically or microscopically, are frequently bound to be disappointed. Dr. Jonathan Wright's concise summary is most apropos:

"Endless talk and circumstantial evidence of the symptoms cannot decisively settle anything and there is little hope of getting the convincing pathological material in which infection or spreading inflammation can be traced objectively."

While not a *pathologist*, I have undertaken the consideration of the subject under five heads for convenience, *viz.*:

- 1st. Direct extension.
- 2nd. Toxemia from some infective process.
- 3rd. Bacteremia or focal infection.
- 4th. Hyperplasia.
- 5th. Anaphylaxis.

1st. By *direct extension*, infections in the posterior sinuses extend by continuity of tissue to the optic nerve. These infections are frequently non-suppurative, hence the negative roentgenograms. The question is often raised,—“Why is there loss of vision with so little evidence of pathology in the nose, and yet rarely any visual disturbance where there is marked disease? The answer is that in these chronic cases nature probably walls off the eye, the optic nerve, and, in fact, the body from the source of infection. When an acute infection occurs in the sphenoid or posterior ethmoid, the sinuses probably become closed and there follows an almost immediate invasion of the tissue about the optic nerve. When, however, there is an infection in a more remote sinus, it may become walled off before the nerve is reached. Should the infection persist, there may be forced into the system a certain amount of bacteria and toxins, which, in turn, can produce an optic neuritis. While chronic infections may occasionally involve the optic nerve, the acute and subacute infections with but little discoverable evidence in the nose are of far greater consequence. The fact that it is so easy to overlook these conditions leads me to dwell upon their importance:

2nd. *Toxemia*—It is conceded that retrobulbar and optic neuritis can be caused by alcohol, lead, tobacco, quinine, optochin, arsenic, lues, etc., so that reasoning by analogy there is little doubt but that toxins originating in the accessory sinuses, or, for that matter, anywhere in the body, may have similar action on the optic nerve.

The onset is usually less violent than where there is a direct extension and is more apt to be a causative factor in chronic types. It is quite generally conceded that any pus focus within the body may be a factor in these vision cases, and while this paper deals only with the accessory sinuses, other possible sources must not be overlooked.

3rd. Bacteremia—It has been demonstrated by Billings that infectious microorganisms may be carried in the blood stream or by the lymph channels from the foci of infection in the teeth, tonsils and accessory sinuses to the terminal blood vessels in various regions of the body. He has shown how the inoculated blood vessels become more or less occluded by endothelial proliferation and leukocytic infiltration and that the bacteria escape through the vessel walls into adjacent tissue, so there would seem little doubt but that bacteria within the accessory sinuses may also travel *via* the blood stream and lymph channels to the optic nerve.

It was probably due to bacteremia that the vision in one of my cases (33) remained at a standstill so long. This patient when operated on three weeks after the onset of the retrobulbar neuritis was only able to count fingers at six feet and the nerve head was turning white. Within forty-eight hours the vision had doubled and the discomfort and lameness about the eye, which had been marked, disappeared. Following a secondary hemorrhage, during which the posterior nares were plugged, there was a very severe infection in both middle ears and mastoids. This continued four weeks. One side recovered under treatment but it was necessary for me to open the mastoid on the other side. During these four weeks the vision remained stationary, but following the draining of the mastoid it commenced to improve again and when last seen some three weeks later was 20/60.

4th. Hyperplasia—As a predisposing factor hyperplasia is probably of considerable importance. It undoubtedly renders the accessory sinuses more vulnerable. Hyperplasia plus infection and direct extension to the optic nerve is probably of far greater consequence than the mere fact that the tissue has become hyperplastic.

5th. Anaphylaxis—In a paper read at the 1921 session of the American Medical Association Stark advanced the theory that there is a "sensitization of the tissues of both the sinus and the orbit by the bacterial proteins producing an allergy resulting in a localized anaphylactic reaction each time the individual comes in contact with a fresh infection of the same bacteria in the nose, and possibly in other parts of the body. For that reason many of these cases give a history of attacks resembling hay fever, or acute coryza, shortly previous to the eye trouble." While I have had a few cases presenting symptoms similar to those mentioned by Stark, it had not occurred to me that this would satisfactorily explain the pathology. It would,

of course, explain the negative roentgenograms and the meager findings on opening the sinuses. It is, I believe, a valuable suggestion. There certainly seems to be a similarity between some of these eye conditions and certain anaphylactic reactions comparable to asthma and hay fever. As sinus infections frequently cause asthma, it is conceivable that they might also produce engorgement about the optic nerve. Further investigation along this line I sincerely hope may clear up many points which are but imperfectly understood at present.

Just a word as to what we are doing in pathology and the findings. The middle turbinate and the tissue from the sinus walls are placed in separate specimen bottles and after being carefully marked are sent to the laboratory for study together with cultures and smears from the sphenoid. Sections from ten cases I have brought with me which may be examined by those interested. I suspect, however, that most of you will prefer to read Dr. Jonathan Wright's interpretation of these slides which is included in my paper on Etiology and Pathology, shortly to appear in *The Laryngoscope*.

Dr. Martland, of the Newark City Hospital, also looked over the slides and summarized his findings as follows:

"Most sections show intact mucosa, in many places it seems to be edematous and hyperplastic; submucosa varies all the way from normal to areas containing numerous small mononuclears, practically no polymorphonuclears, some sections show considerable number of eosinophiles, indicating low grade chronic infection. Submucosa is often edematous, in some places there is questionable rarefying osteitis. Many sections show considerable dilatation of submucosal vessels (acute hyperemia) and undoubtedly represents low grade chronic inflammation, which is non-suppurative. Conclusion: It is quite possible in non-suppurative inflammation that edema of mucosa and submucosa with acute hyperemia of vessels, etc., may produce more pressure than a suppurative process, in which the pressure is often relieved by the breaking down of the tissues."

THE PROGNOSIS.

The prognosis depends largely upon the duration and extent of the loss of vision, the condition of the fundus and the virulence of the infection.

1. As to the *duration*, I have endeavored to determine how long an interval could elapse before there would be danger of permanent impairment of vision. In the 34 cases tabulated, four (all of short duration) recovered under local treatment. Seven operations were performed in the first week and practically normal vision obtained in all. Of the six patients operated upon within two weeks, two recovered with normal vision, three with vision 20/20—but with slight pallor of the nerve, and one with vision of fingers at three feet with optic atrophy.

Of the six cases in which operations were performed between the second and fourth weeks, normal vision but with some pallor was obtained in one; improvement in all the others. Four patients were operated upon in the second month. One obtained normal vision, another 20/20—but with some pallor. In the other two, optic atrophy with no improvement in one, and but slight improvement in the other. Of the six cases of over two months' duration, there was no improvement in three, and in the others it was so slight as to be almost negligible. In one case of four years' duration there was complete optic atrophy and, of course, no operation.

From the foregoing summary it may be said with some degree of assurance that unless a case shows improvement under treatment within a week, there is danger of permanent impairment of vision, unless pressure on the nerve can be relieved. In cases of more than two months' standing little can be expected, except possibly that the progress of the disease may be checked if due to some sinus infection.

2. As to the *degree of loss of vision*—In the seven cases in which there was complete blindness, two (of eight and 10 days' duration) returned to normal but pallor of the nerve remained. In one of four weeks' standing, fair sight was established. Unimprovement in three, while in another, fingers could only be counted at three feet. Thus the demand for early operative interference in total loss of vision is more imperative than when the loss is but partial.

3. *Condition of the fundus*. When the nerve appears normal one might, with safety, delay operating much longer than where there is increasing engorgement, or commencing pallor. It has seemed to me so imperative that the fundus changes should be watched from day to day that I have spent many hours during the past year trying to train my eye to this task.

4. *The virulence of the infection*. As in all the other types of infection, so in that producing optic neuritis, the microorganisms differ greatly in virulence. When the infection is of the virulent type, there is probably considerable exudate about the nerve or even within its sheath. The optic nerve, as you know, is really not a nerve but a part of the brain. It is easily destroyed and does not regenerate. Parsons says of it:

"The so-called optic nerve, together with certain parts of the retina, constitutes a lobe of the brain, and has therefore the characteristics of the central nervous system. Hence the nerve-fibres are devoid of a sheath of Schwann and the interstitial substance is neuroglia."

Whenever there is an exudate we have to contend with subsequent shrinking which may destroy the function of the nerve even though the pressure is relieved. This helps to explain why there are not complete recoveries in some early operations. Several of my cases showed pallor of the disc which probably resulted from this exudate. One of only ten days' duration had

marked optic atrophy. The virulence of the infection in another case (31) was so marked that had the accessory sinuses not been promptly drained the vision would probably have been permanently lost. The case is also interesting from the fact that she was seen from the very onset of the trouble, being referred by Dr. Quackenboss on March 15, 1921, with diagnosis of optic neuritis, right. History: Fair general health but rather tired; has been subject to colds, has had one for four or five days, accompanied by pain about the eye for the past 24 hours, so that when seen she looked extremely ill. Eye was sensitive to light and on movements and pressure. Vision when first seen was 20/20. The right middle turbinate was somewhat enlarged and the septum deflected to that side. No secretion was seen within the nose but there was a marked pharyngitis. Transillumination was negative. Roentgenograms showed right posterior ethmoids. Slightly clouded and infection about one tooth which was later extracted. The physical, neurological and Wassermann examinations were all negative. Two days later the patient's vision was 20/40, central scotoma for colors. The following day there was an increase in the neuritis; vision 10/100. In view of the negative neurological examination, the rapidly diminishing sight and the increase in the inflammation of the optic nerve, it was deemed advisable to open the accessory sinuses at once. Under general anesthesia the right middle turbinate was removed, the sphenoid opened and the posterior ethmoid uncapped. The tissue was somewhat inflamed but no pus was seen. The lining wall of the sphenoid was little, if at all, changed. Cultures and smears were made and specimens saved for study. On the day following the operation the patient felt considerably relieved and the eye was less blurry. This lasted but a few hours, then there was a rapid recurrence of the blurring, probably due to an acute coryza or some post-operative infection, and the vision continued to fail, so that a week after operation fingers could only be made out at three inches and the edges of the disc were practically obliterated, some exudate, small blood vessels engorged. Two weeks after operation the swelling in the nose had subsided and the discomfort and blurriness were alleviated; counted fingers at eight feet; four days later fingers at 25 feet. Within a month the blurriness had practically disappeared and the outline of the disc was sharply defined. Vision was 20/60. Slight pallor of the nerve was noted two weeks later, vision 20/30. In six months it was 20/20. The smear from the sphenoid showed only blood and a few epithelial and pus cells. In one of the culture tubes there were three colonies of diphtheroid bacilli. Five specimens from the middle turbinate and sinuses were examined by Dr. Jonathan Wright, who reported as follows:

"(a) Right middle turbinate. Soft parts not especially altered. Some hyperplasia of fibrous

tissue near the bone and a very moderate degree of increase in the cellular activity along some bone edges,—blood vessel walls somewhat thickened. *Chronic inflammation of deeper elements of the mucosa and of the bone.*

“(b) Another fragment of right middle turbinate. Thinner section—more impressed with bone involvement. Fibrous hyperplasia quite evident.

“(c) Sphenoid. Specimen very small. Rarefying osteitis along some edges rather marked, but soft parts are largely lacking—not very satisfactory.

“(d) Ethmoid. More tissue, but no epithelium. Connective tissue near bone rather damaged by decalcifier, but intense nuclear infiltration and bone change marked as in (a)—more of it. O. im. 1/12 not very satisfactory. Section thick and cellular changes not very distinct, but one gets the impression of much cellular infiltration. Rather an acute process involving bone.

“(e) Post ethmoid. Narrow long strip of bone. Nothing to add to (a).”

THE TREATMENT OF OPTIC NEURITIS.

What is the appropriate treatment for a case with sudden loss of vision probably due to accessory sinus infection? It is known that some recover spontaneously while others untreated go on to atrophy. To operate in every instance would cause criticism, especially from those who claim that a large proportion recover spontaneously, but on the other hand permanent blindness may follow by delaying operation. Pus has only occasionally been found in the sinuses I have opened, and yet improvement usually commenced within 48 hours. It seems to be *aeration* or *ventilation* that is *required* rather than drainage or removal of diseased tissue. Hence, the general statement may be made that if aeration can be established the patient has been given appropriate treatment.

In speaking of the etiology mention was made of the theory that either acute swelling or chronic enlargement of the middle and superior turbinates seemed to be the explanation in many cases. If this is a fact, relief should be obtained either by remedies causing acutely swollen turbinates to subside, or by their removal of this tissue when chronically enlarged. Under local treatment several patients have recovered, and it is in the class of acutely swollen middle turbinates that most of the spontaneous recoveries belong. As previously mentioned, one can usually determine how much the tissue will contract, and as to whether or not the superior meatus can be sufficiently opened to furnish the requisite ventilation. If, after cocaineization, the turbinate is found to hang free, the case will probably recover under local treatment. While, on the other hand, should the middle turbinate after cocaineization still obstruct the aeration (*i. e.*, be wedged between the ethmoid wall and what frequently is found, a posterior deviation of the septum to the affected side) then the

chances are not so good for recovery under local treatment, and it may be necessary to establish aeration by at least the removal of the middle turbinate and possibly the opening of the sphenoid sinus and the posterior ethmoid cell. As far as I have been able to determine, any process by which a chronic thickening of the turbinates (hyperplasia if you wish) is brought about, has probably produced some change in the linings of the accessory sinuses, I have therefore usually made it my practice, after taking out the middle turbinate, to remove the front wall of the sphenoid and uncap the posterior ethmoid cell. The other ethmoids, unless diseased, are not disturbed. If teeth or tonsils show infection, they are removed, and if an antrum is suspected, it is washed out and if pus is found, it is thoroughly opened. The more I study along this line the more this conservative method appeals to me. While on several occasions I have done a more extensive ethmoid operation, I do not now think it was necessary. Aeration of the sinuses adjacent to the optic nerve seems to be all that is required, the function of the nose is little if at all, impaired, and the procedure is less hazardous than when a complete ethmoid exenteration is performed. While to the skilled operator these radical procedures are of minor concern, the patients do not always fall into his hands. As fatalities have been reported following these extensive operations on the ethmoid labyrinth, it has seemed best to advocate a method having the advantage of being both simple and safe.

It may be superfluous to mention the operative procedure but if I do not some one is sure to ask, so the following is taken from a recent article of mine in *The Laryngoscope*—“Remove as much of the middle turbinate as is necessary to gain access to the sphenoid, by incising it below and anteriorly with a Sluder knife, then severing its outer attachment with middle turbinate scissors, followed by snare, and finally removing all fragments, and occasionally portions of the superior turbinate with biting forceps. It is especially important to freely expose the front wall of the sphenoid. The Sluder's sphenoid knife, with point downward, is passed along the cribriform plate until the front wall of the sphenoid is reached high up. Downward pressure easily forces the knife through this anterior wall. By this method one is working away from the brain and never toward it. With two or three strokes downward and then two or three outward, the sphenoid is sufficiently opened to permit inserting an antero-posterior pair of biting forceps with which the anterior wall is quickly removed. The posterior ethmoid is uncapped with a eurette. Don't meddle with the lining membrane of either the posterior ethmoid or sphenoid.”

As to post-operative complications. There have been no fatalities. Three secondary hemorrhages have occurred, two were controlled by packing in the nose as the third might have been.

This is the mastoid case already mentioned in speaking of bacteremia. The patients are usually not upset by the operation and remain in the hospital but two or three days. Local anesthesia can be used if one so desires, but ether, with patient in sitting position, is usually preferable. The results have already been summarized under prognosis and it but remains to add in conclusion that my early operations have been uniformly successful. Cases of over two months' duration, however, have been benefited but little. One cannot draw sharp lines on the basis of time only. Each case must be considered on its own merits. Some with progressive loss of vision, even when there was marked pallor of the nerve, have been slightly benefited. Complete optic atrophy is, of course, hopeless.

CASE 34: E. A. H., a schoolboy of 15, was referred on May 18, 1921, by Dr. William N. Souter, with diagnosis of optic neuritis, right. Patient in fair health but rather backward: is subject to frequent colds and occasional sore throats; right eye has never focused: had severe cold a month ago. Eight days ago pain commenced in the right eye, shortly followed by almost complete loss of vision. Finger movements on temporal side close to eye when first examined. Eye sensitive to pressure and on movement. The boy had large unhealthy tonsils and adenoids. Septum was fairly straight. The right middle turbinate was of large size and shrunk but little on cocainization. It seemed, without question, to obstruct the posterior sinuses. Some muco-purulent secretion beneath both middle turbinates. Dr. Macmillan reported on the roentgenograms as follows: "All sinuses appear clouded, suggestive of an acute pansinusitis. Ethmoids in particular appear to be involved, the left perhaps more than right. Stereoscopic lateral examination shows sphenoid is large but does not appear to be clouded." Dr. Vail examined him and reported: "Convergent squint o. u. External recti can function. Left pupil larger than right. Pupils react to consensual reflex. Sluggish with suggestion of hippus on flashing light into right eye and exam. reaction of left. *Fundi*—o. d. disc pale, outline blurred, vessels not remarkable; o. s. disc pale yellow, outline sharp. Pigment not marked. *Visual field* on rough examination in right eye confined to upper temporal quadrant. *Vision*—Sees light shadows with right eye; left eye apparently normal. *Cranial nerves*—Normal. Patient right handed. No aphasia or cerebral disturbance. No spontaneous nystagmus nor Romberg. Kneejerk lively and equal. *Impression*—No evidence of any intracranial lesion." The other examinations being negative and the findings in the nose so positive, there was no hesitation in advising immediate operation. On May 20th the tonsils and adenoids were removed, the right middle turbinate taken out, and the posterior ethmoid cell uncapped. As the opening into the sphenoid seemed of good size, it was not enlarged. There was an almost immediate im-

provement in vision, so that within three days he could count fingers at one foot. Two months later Dr. Souter reported that the patient "shows excellent progress. Vision with correction 6/12 plus, fields practically normal, though disc shows some pallor." Dr. Verhoeff reported as follows on the middle turbinate specimen: "The mucosa shows a marked infiltration with chronic inflammatory cells, plasma cells greatly predominating. There are, however, small foci composed exclusively of lymphocytes. Pus cells are practically absent. There is no tendency toward polypoid formation. The deeper tissue is normal."

SUMMARY.

The optic nerve is only in close relationship to the sphenoidal sinus and the posterior ethmoidal cell. In order to reach the tissue adjacent to it, the direct and logical route would be through these structures and not through the entire ethmoidal labyrinth.

The literature dates back a little over one hundred years and the general impression obtained from it is that purulent infections, even though unrecognized, must exist.

The diagnosis can sometimes be made almost from the symptoms, while at other times it can only be determined after the most careful and painstaking study. Roentgenograms are usually disappointing. Great care must be taken to exclude brain tumors.

No one etiological condition is responsible for all cases. While purulent infections may account for a few, there are many in which the infection is non-suppurative. Poor ventilation and faulty drainage are all important predisposing factors. The size and position of the middle and superior turbinates are of great importance in aeration of the posterior sinuses.

- Pathology: 1. Direct extension
2. Toxemia
3. Bacteremia
4. Hyperplasia
5. Anaphylaxis

1st. By direct extension acute and subacute infections spread by continuity of structure to the optic nerve.

2nd. Toxemia. Toxins originating in the accessory sinuses may involve the optic nerve.

3rd. Bacteremia. Microorganisms may be carried in the blood stream or lymph channels from the sinuses to the optic nerve.

4th. Hyperplasia as a predisposing factor is of considerable importance as it tends to render the accessory sinuses more vulnerable.

5th. Anaphylaxis. There seems to be a similarity between optic neuritis and certain anaphylactic reactions comparable to asthma and hay fever. As sinus infections cause asthma it is conceivable that they might also produce engorgement about the optic nerve.

The prognosis depends on the duration and extent of the loss of vision, the condition of the fundus and the virulence of the infection.

Treatment: The important thing is to estab-

lish aeration and not to remove diseased tissue. Some will recover under local treatment. In others a semi-radical sphenoid operation is advocated.

Complications: No fatalities. Three post-operative hemorrhages. In one, middle ear infection followed the post-nasal packing.

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PERFORATED GASTRO-DUODENAL ULCERS. SOME NOTES AS TO THEIR TREATMENT.

By JAMES J. HEPBURN, M.D., F.A.C.S., BOSTON,
[First Surgical Service, Boston City Hospital.]

PERHAPS the most serious and terrifying surgical emergency which can occur in the abdomen is the acute perforation of a gastric or duodenal ulcer. It is a condition which must be recognized and treated promptly, otherwise the result is most apt to be a fatality. It is not the type of accident in which "observation" is allowable, for every hour after perforation increases the mortality with great rapidity.

So much concerning this condition has appeared in the literature during the past decade, that it would seem as though the symptomatology of it would be a matter of common knowledge, and that great accuracy would be attained in its diagnosis. Yet, reports from various clinics throughout this country show that the diagnosis is made in only from 28 per cent. to 60 per cent. of cases. Furthermore, one case in our own series, and which we shall report later, was admitted as cholelithiasis and was in the hospital six hours, until the increasing gravity of the symptoms demanded that some one be called to see him. The diagnosis in this case was perforated duodenal ulcer and was proved at operation. These facts furnish an excuse for briefly reviewing the symptoms.

The most important single item is the history and it is so characteristic that the diagnosis should be made from it alone. There are no

premonitory symptoms. The victim is stricken suddenly during his ordinary occupation. He may be at work or at play, when suddenly he is seized with an atrocious pain in the epigastrium. He may be thrown to the ground by the severity of the attack. Soon he is writhing in agony. He passes almost instantly from a condition of relative well-being to one in which his very life is in jeopardy, and he knows it. He is conscious that he is desperately sick, and demands relief. This story is almost unvaried and should be sufficient to establish the diagnosis, for surely no other condition simulates it.

Quickly the signs of peritoneal insult supervene: nausea, vomiting, abdominal rigidity and shock. On physical examination, we find the patient with a pinched, anxious face, breathing with obvious difficulty. The abdomen is held rigidly, and respiration is almost entirely thoracic in type. The abdomen is tender and rigid, "board-like." With tenderness and spasm most marked in the epigastrium. The pulse is accelerated: the temperature may or may not be increased. Later, with increasing leakage of air from the perforation, the normal liver dullness is obliterated. This is a very valuable sign and is almost always present. And this sign is especially valuable for this reason: Very often, in such a cosmopolitan clinic as that at the Boston City Hospital, we are obliged to operate on foreigners who cannot speak our tongue, where no interpreter is available, and who cannot furnish a shred of history. The most valuable diagnostic landmark is lacking. In such a case, the only physical sign of any value whatever is the absence of the normal liver dullness and its replacement by tympany. If this sign is missing, no diagnosis can be made except acute surgical lesion in the upper abdomen.

Treatment. Until comparatively recent years, the treatment has always been suture of the ulcer, and drainage, and the results, with very few exceptions, have certainly been nothing to brag about. Scully reported 49 cases treated at the Cook County Hospital, Chicago, with 28 deaths; a mortality of 57 per cent. Hertz reported 53 patients operated at the Copenhagen Hospital, with 27 deaths; a mortality of 50 per cent. plus.

During the years 1915 to 1920, 119 cases have been operated at the Boston City Hospital, with 52 deaths; a mortality of 43 per cent. These cases have, for the most part, been treated by simple closure of the ulcer with drainage. There have been a few small series of cases reported, with low mortality, notably Gibson's. He reported 14 cases operated by simple closure, with one death. However, with a few exceptions, the general mortality of perforations treated by simple closure runs between 30 and 40 per cent.

It would seem that in dealing with such a serious condition, anything which might improve results must be seized upon and tried out. It was for this reason that the operation of posterior gastroenterostomy was added to the treatment. The principal advocate of this has been

John B. Deaver. He has been using it practically as a routine operation for the past 15 years, and his latest statistics show 67 operated cases, with five deaths, a mortality of 7.5 per cent.

Gibson, of New York, has had remarkable success with the simple procedure, and heads the list of the opponents to the more radical operation.

My colleague, Dr. Walker, reported 98 cases operated at the Boston City Hospital, almost entirely by simple closure and drainage, with 21 deaths; a mortality of 27 per cent. Richardson reported 90 cases from the Massachusetts General Hospital with 32 deaths; a mortality of 35.5 per cent. Walker concluded that gastroenterostomy was unjustifiable, in spite of the fact that it had been done on only a few cases. Richardson rejected the operation in spite of the fact that out of 12 cases in which it was done, 10 recovered; a mortality of 17 per cent. compared with 35.5 per cent. for the whole series.

From the foregoing, it is obvious that primary gastroenterostomy had received a rather effective "black eye" in Boston. In spite of this, however, greatly influenced by the astonishing results of Deaver, we believed in the primary operation, and were only waiting for what we considered to be a suitable case. This opportunity came in November, 1918, and the result was so striking, the convalescence so smooth, that we have employed it in all the cases of acute perforation which have since fallen to our lot. The total is eight cases. A brief résumé of the histories follows:

CASE 1. P. D. Male. Laborer. Age 47. Admitted B. C. H. November 26, 1918. Previous history of digestive disturbance. Seizure three hours before admission. Liver dullness absent. Diagnosis pre-operative. Perforated ulcer. Operation. Perforation found in first part of duodenum. Closed and infolded. Posterior gastroenterostomy. Drainage. Convalescence uneventful. Discharged December 12, 1918.

CASE 2. A. W. Male. Blacksmith. Age 22. Admitted B. C. H. September 20, 1919. No previous digestive disturbance. Seizure six hours before admission. Liver dullness absent. Pre-operative diagnosis. Perforated ulcer. Operation. Perforation found in first part of duodenum. Closed and infolded. Posterior gastroenterostomy. Convalescence uneventful. Discharged October 6, 1919.

CASE 3. E. A. Male. U. S. Marine. Age 30. Admitted to B. C. H. November 2, 1919. No previous history of digestive disturbance. Seizure eight hours before admission. Liver dullness absent. Pre-operative diagnosis. Perforated ulcer. Operation. Perforation found in anterior wall of first part of duodenum. Con-

valescence uneventful. Discharged November 11, 1919, to Marine Hospital, Chelsea.

CASE 4. J. H. Male. Janitor. Age 72. Admitted B. C. H. November 9, 1919. History of previous digestive disturbance. Seizure eight hours before admission. Liver dullness absent. Pre-operative diagnosis. Perforated ulcer. Operation. Perforation found in anterior wall of stomach, $1\frac{1}{2}$ inches from the pylorus. Perforation infolded. Posterior gastroenterostomy. Convalescence uneventful. Discharged November 22, 1919.

CASE 5. D. McP. Male. Mechanic. Age 47. Admitted B. C. H. April 27, 1920. History of digestive trouble. Seizure five hours before admission. Liver dullness absent. Pre-operative diagnosis. Perforated ulcer. Operation. Perforation found in anterior wall of stomach close to the pylorus. This was closed and infolded. Posterior gastroenterostomy. Drain to the site of perforation and on account of the very large amount of gastric contents in the pelvis, a suprapubic drain was inserted. Convalescence uneventful until the third day, when a cough appeared, accompanied by a rise in temperature to 102.5 degrees. Physical examination showed an infarct in the right lung. Convalescence from then on, uneventful. Discharged May 14, 1920.

CASE 6. A. L. Male. Laborer. Age 30. Admitted B. C. H. December 4, 1920. No history of previous digestive trouble. Seizure six hours before admission. Diagnosis on admission was gallstones. He was in the hospital six hours when seen by us. At this time, 12 hours after seizure, the diagnosis of perforated ulcer was made. Operation. Perforation found in anterior wall of second part of duodenum. This was closed and infolded. Posterior gastroenterostomy with drainage. Convalescence uneventful. Discharged December 27, 1921.

CASE 7. A. Z. Male. Shipwright. Age 57. Admitted B. C. H. March 3, 1921. Previous history of digestive trouble. Seizure 30 hours before admission. Pre-operative diagnosis. Perforated ulcer. Operation. Abdomen filled with bile-stained fluid which suggested ruptured gall-bladder. Gall-bladder found to be very much distended and filled with stones. Perforation found low in the posterior wall of the second part of the duodenum partly occluded by fibrin. The anatomical relations were so confused on account of the staining with bile, and for fear of wounding the portal vein, no attempt was made to suture the perforation. Posterior gastroenterostomy was made. Gall-bladder removed. Drain placed down to the site of perforation. Convalescence was stormy for a while. Drained duodenal contents from third day on. Discharged April 7th, 1921. The discharge diminished gradually and the wound was entirely healed on May 8, 1921.

CASE 8. L. T. Male. Laborer. Age 38. Admitted to B. C. H. October 1, 1921. Previous history of digestive trouble. Seizure five hours before admission. Liver dullness absent. Convalescence uneventful. Discharged November 4, 1921.

SUMMARY.

SEX	AGE	TIME INTERVAL	OPERATION	RESULT	TIME IN HOSPITAL
Male	47	3 hours	Closure and Gastro-enterostomy	Recovery	16 days
"	22	6 "	" " " "	"	16 "
"	30	8 "	" " " "	"	9 "
"	72	8 "	" " " "	"	13 "
"	47	5 "	" " " "	"	18 "
"	30	12 "	" " " "	"	24 "
"	57	30 "	Closure, Gastro-enterostomy and cholecystectomy.	"	25 "
"	38	5 "	Closure and Gastro-enterostomy	"	14 "

Average age, 43 years; average time interval, 9½ hours; average stay in hospital, 17 days.

We realize that this small series, while personally gratifying, is without value from a statistical point of view. However, the cases are consecutive: they represent a wide range in the time interval, age, and general physical condition of the patients: they certainly cannot be called selected cases. It would seem, then, that this method of treatment offers some chance of improvement in our results. Not that we would recommend any routine procedure for this condition. We should judge each case on its merits, and after consideration of all factors, do the operation which seems best under the circumstances.

The most important factors to be considered are: *First*, elapsed time between perforation and operation, for the danger increases rapidly with the increase in the time interval, each moment adding to the degree of contamination and the chances of peritonitis. *Second*, the general condition of the patient; and this includes a comparison between his condition before perforation, and the degree of shock present after perforation. In other words, How hard has he been hit? *Third*, the size of the perforation and the rate of leakage; the degree to which it has been closed by fibrin, omentum, or food particles. *Fourth*, the degree of peritonitis already present, remembering that true peritonitis occurs only late in the disease. *Fifth*, the condition of his stomach at time of perforation; was it full or empty? *Sixth*, the degree to which the pylorus will be occluded when the perforation is closed, and this is a very important item, because a perforation cannot be closed without encroaching upon the lumen of the bowel. But adequate treatment demands not only treatment of the perforation but also of the underlying ulcer. This must be folded in, and of course that means further constriction. Furthermore, the amount of constriction must be greatly increased by subsequent oedema and swelling, caused by our operative manipulations. This, in our opinion, is one of the very important causes for the bad results in cases treated by simple closure.

From the foregoing, it is obvious that no hard and fast rule can be laid down for the treatment of these cases. Nor can the conditions be prog-

nosticated until the abdomen is opened, and each of these factors considered. For example, a man with a small perforation, occurring when the stomach is empty, may have only a small accumulation of fluid in his abdomen, and may be a good surgical risk even after thirty-six hours. On the other hand, a man with a large perforation, after a full meal, may be in desperate condition, with gastric contents throughout the abdomen, in an hour or two. Furthermore, the condition may be greatly influenced by the behavior of the surrounding coils of intestine. For example, the transverse colon may distend with gas and, by pressure against the anterior abdominal wall, prevent the gastric contents from reaching the general abdominal cavity. This condition I have seen on two occasions. In favor of immediate gastroenterostomy it may be said that the possibility of pyloric obstruction, whether from closing the ulcer, from oedema, or from later cicatricial contraction, is obviated, the stomach and duodenum are immediately put in a condition of rest, and the necessity for a secondary operation is removed. The mortality is diminished and the convalescence more smooth.

The objections to this procedure are that it prolongs the operation, adding further shock to a patient already in a serious condition; that the lesser peritoneal cavity is opened to infection; that perforation cures the ulcer and therefore removes the necessity for gastroenterostomy. The first objection is certainly obvious. Something is added, both to the time and shock, and this must necessarily contraindicate the operation in patients already prostrated. But, as has been pointed out by Deaver, these cases stand surgery very well, and it is only in the occasional case that gastroenterostomy would increase the danger. The objection to opening the lesser sac doesn't seem to amount to much, since no one has reported a case in which infection of the sac has been caused thereby. The contention that perforation cures the ulcer has been disproved by the many cases of re-perforation which have been reported. Furthermore, the reports of end-results available, and our own experience in perforation treated by simple

closure, would indicate that the ulcer persists and causes symptoms in a large percentage of cases.

In view of these facts, it would seem that we have available a therapeutic measure of considerable value which has not been reasonably tested in this locality. Our own experience would indicate that, if this procedure is more generally adopted, there will be a sudden and decided improvement in our statistics.

STIFF FINGERS.

BY FRED J. COTTON, M.D., BOSTON, AND
EDW. J. SAWYER, M.D., BOSTON.

CONCERNING stiff fingers in their various sorts, which are much commoner than they should be among us, even now, we have had no very definite scheme nor any considered form of attack.

After trauma as, typically, in Colles' fracture, with or without "traumatic arthritis" as a sequel; after metacarpal or phalangeal fractures, especially the compound ones; after mashing of soft parts of the hand; after all infections and particularly the so-called cellulitis cases; after burns, with or without infection; after the run of an acute rheumatism or a subacute attack in hand or wrist;—in all these conditions and in other odd calamities one meets with stiff wrists, stiff fingers, and no little suffering and disability,—out of all proportion to the cause or the lesion, for the lesion in fact is apt to be merely a scar fibrosis of one or another structure about the joint—in the "soft parts"—only rarely in the tendon sheaths which have been heavily overplayed in our teaching.

Some of the cases yield to the baking and massage that has become so usual lately that in our hospital records they write "B. & M." just as they still write "D. & C." for a routine measure hardly less justified as a scheduled routine.

Many pelvic cases, however, have never yielded to the magic of "D. & C.", and some wrists and fingers show a like stubbornness to the blandishments of "B. & M."!

Not a few become inveterate, though with little or no joint damage, and with actual lesions apparently inconsiderable.

It is fair, I think, to consider any case under ordinary physio-therapy treatment—and I include in this all the Zander, Tait-McKenzie measures—for three months without something near a cure, as fully ripe for a surgical overhauling.

Some there be that need bone surgery or tendon plasties or scar excision with flap plasties.

These are not our concern for the moment.

What we mean is the class of cases that have gone on for months almost unchanged,—the kind of cases that used to have a calamitous (though kindly meant) "*brisement forcé*."

Most of these can be handled by traction. During the war every doughboy knew the banjo or "ukelele" splint.

The principle—very old—of the "ukelele" was that of continuous traction, or, to put it concisely, of *distraction* and *traction*, the pulling of joint surfaces *APART* to lessen the terrific intra-articular pressure from the attempt to flex or extend the fingers.

Also the deep principle that massage can endure but a quarter or half hour a day,—1/96 to 1/48th of the time, while traction can equal 96/96—a not inconsiderable advantage, if you think of it.

Some months ago we found ourselves doubtfully blessed with a few of these cases, carefully treated by routine methods, getting no where at all.

CASE 1. F. W. Male. Age 53. Injury to shoulder, May 1920. Secondary stiffening, definitely arthritic, of wrist and fingers. Routine treatment with good P. T. handling. His home doctor advised amputation of at least two useless fingers.

January 1, 1921, all finger-tips under forced flexion could be brought only to the level of the knuckle joints and two inches away from the palm.

Apparatus as sketched in Fig. 1 was applied with the elastic pull regulated by the very competent patient. This was the full range of flexion possible at that time. He wore this apparatus for two months, then a strong elastic band about the knuckles to flex them was worn as constantly as possible. After about 2½ months the result was as shown in Fig. b, and a fortnight of massage and active exercise restored him to normal function.

CASE 2. R. B., Man of 55. Colles' fracture one year previous with mild arthritic reaction and stiff wrist and fingers.

Wrist capable of 45 degrees flexion, with no supination, and pronation 20 degrees short of his limit (measured by the other hand). Under physio-therapy the wrist came back to near normal but the fingers, particularly the first and fourth, remained stiff at knuckle and finger-knuckle joints so that they could not be brought within a half inch of the palm.

Traction apparatus applied (as in Case 1.) with pull in the line of the deformity *gradually* changed to slightly more flexion. This was March 8, 1921. April 4th all fingers touch the thenar eminence with a good grasp.

Patient discharged with perfectly good hand.

Time prior to treatment—1 year.

Time under treatment to final result—27 days.

CASE 3. H. T., Man of 38. Machinist. Four months previous, crushing wound back of right hand involving adhesion to tendons of 1st and 2d fingers.

Operation Jan. 25, 1921. Secondary repair

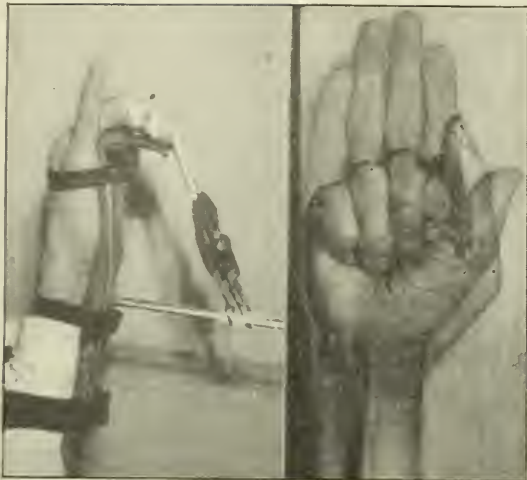


FIG. 1. Case 1 at the beginning of traction treatment and a double exposure plate showing the limits of flexion and extension, taken ten weeks later.



FIG. 2. Case 3, March 3, 1921, and March 10, 1921.



FIG. 3. Case 4, End-result. Double exposure showing limits of voluntary flexion and extension.

of these tendons and plastic rearrangement of scar.

March 3, 1921, three weeks later, traction apparatus applied to all four fingers. At that time fingers could be closed only to level of knuckles,—better than before operation but not greatly better.

After 10 days, all fingers came to within $\frac{1}{4}$ – $\frac{1}{2}$ in. of the palm.

After 15 days fingers came to palm with a grasp still a bit weak but otherwise normal.

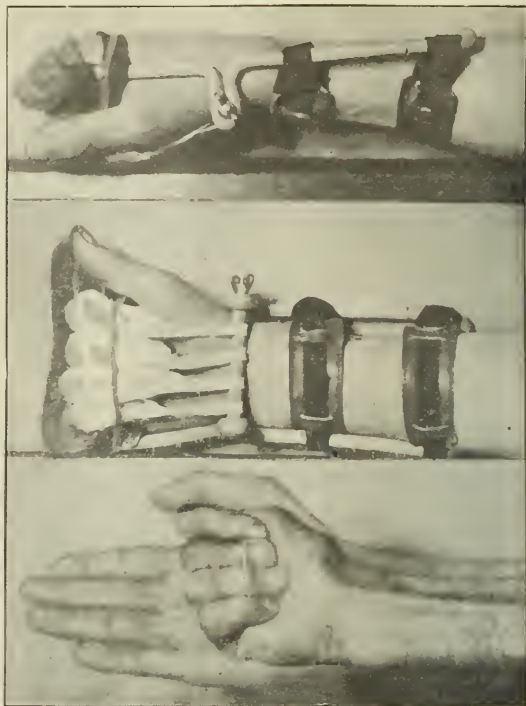


FIG. 4. Case 5. Apparatus and end-result.

CASE 4. W., Male of 27. Septic hand, multiple incisions, one year previous to reference to us. Ring finger useless with destroyed tendons.

Amputation of the ring finger at finger knuckle, 1921. Four months later, after persistent and competent physiotherapy, the finger tips could not be brought to the palm or near it.

Feb. 19, 1921. Apparatus applied, to be worn at night only. At that time index $\frac{1}{2}$ in. from palm, middle $\frac{1}{2}$ in. from palm, little $2\frac{1}{4}$ in. from palm.

On Feb. 25th, at six days, index $\frac{1}{4}$ in. from palm, middle $\frac{1}{4}$ in. from palm, little 2 in. from palm.

March 3, index to palm, other two with normal flexion at knuckle and finger knuckle, last joints a bit stiff.

After this elastic flexion bands applied to be worn at night to complete cure.

March 9. Normal mobility, exception little finger, which still was $\frac{1}{4}$ in. short of reaching the palm. (Feb. 19 it was $2\frac{1}{4}$ inches short.)

March 24. All fingers practically normal. April 2 (42 days) all motions normal, lacks only strength: discharged.

CASE 5. J. C., Male 40. Stableman. Right Colles' fracture, Aug. 21, 1920. Splint for six weeks.

First seen Nov. 17, 1920. Marked loss of supination, flexion and extension at the wrist. Fingers all very stiff.

Dec. 1, 1920, operation to remove a partly loose fragment of bone on the back of hand impeding action of extensor tendons.

Aseptic recovery, but, even with careful P. T. treatment, no great results.

Feb. 4, 1921, all four fingers show loss of flexion at knuckle-joint, so that tips of fingers in flexion come only to knuckle level.

Traction applied.

Feb. 7, gain= $\frac{1}{4}$ in. average in flexion.

Feb. 10, all fingers touch thenar eminence in flexion.

Feb. 17, 1921, all fingers press thenar eminence in active flexion with considerable grasp.

Save for muscle strength to be gained, this is a normal hand.

Previous disability 136 days.

After traction 13 days.

In this case a different pattern of splint was used,—perhaps no better.

CASE 6. H. P., Girl of 22. Baseball injury to right ring finger six weeks previous to my seeing her. Under electrical and massage treatment by Dr. F. B. Granger she had progressed to a certain point. He referred her to me Aug. 4, 1921, there being no further improvement.

There was still about 30 degrees of permanent flexion on the "finger knuckle" joint (between ph. 1 and 2.)

The x-ray showed thinning of cartilage and irregularity of first phalangeal joint of ring finger, July 7, 1921.

In this case we applied the old type "banjo" splint with traction in line of deformity and moderate pressure to correct flexion.

After a week, straight traction in the banjo splint was practicable.

This was to be worn at night, a little "trough" splint daytimes, and she went westward to her home practically well,—or at least with normal range of joint motion.

CASE 7. T. B., Male, 24. Traumatic amputation left index and phalanx, sepsis.

Seen by us many months later.

Banjo splint applied.

Some correction of hyperextension at the knuckles.

No serviceable gain.

This case had real joint adhesions, and the treatment was a mistake.

CASE 8. Mrs. L., Age 45. Hypertrophic arthritis of divers joints. Traction apparatus (banjo splint) applied in this case failed because of the obstruction furnished by actual mechanical locking (by osteophytes). It was bad judgment to have tried it.

So there are eight cases here, of which six were materially and very practically benefited by the careful application of a method we all know about and have neglected.

The lesson is obvious.

As to apparatus, the banjo splint is old;—the other two forms (devised by Dr. Sawyer) are rather neat, but have no exclusive claim on efficiency.

The whole story is, we think, that 24 hour traction, by miniature winches or by pull of elastic bands, traction exerted in the line of deformity to produce a *distraction* of joint surfaces, with very gradual change of the line of pull toward flexion or toward extension as the case demands, will so supplement ordinary physio-therapy methods or so displace them that stiff hands and fingers may possibly come to be rare and come to be regarded as perhaps a reflection on the treatment of the case rather than as the result of the "Act of God" clause under which we surgeons perhaps, even like the express companies, are a little too much inclined to explain our losses.

THE AID WHICH THE STATE OFFERS IN CONTROL OF TUBERCULOSIS THROUGH SANATORIA AND CONSULTATION CLINICS.

BY EUGENE R. KELLEY, M.D., BOSTON,

Commissioner of Public Health.

THE manner in which the State extends assistance to the consumptive by the service of State sanatoria, must be so well known to this group that any description of the mechanism by which this function is carried out is superfluous. Yet within a year I have been astonished to learn of a practising physician of several years' experience in one of our larger cities who, apparently, was in total ignorance of the availability of the State sanatoria for his patients.

The original concept back of the establishment of our first sanatorium, Rutland, seems to have been primarily rather of a humanitarian than of a public health economic character. For one, I am proud that the humanitarian idea of giving the consumptive a fighting chance to win his way back to health was foremost, and that it still is foremost in the minds of the citizens of Massachusetts in their splendid financial and moral support of all these beneficent institutions, whether they are labeled State, County, Municipal, or Private in classification.

It is a grave mistake to consider that the county and municipal tuberculosis institutions should be concerned in the care of the far-advanced to the exclusion of the early or moderately advanced case. There is no reason why such cases cannot be admitted to these institutions if it does not mean the exclusion of the sick and advanced type.

Yet I cannot but feel that the time has come when we need to make a more concerted effort to get back to original principles and ideals relative to the sanatoria and endeavor, as never before, to encourage the physicians of the State to see that their patients get to the State sanatoria in the earlier stages of the disease.

The reason for this is twofold:

In the first place, the State sanatoria were not originally constructed for, and in spite of later makeshift adaptations made by pressure of necessity, are not now, and never will be, adequate *hospitals*. The newer municipal and county institutions, in addition to being able to provide the basic provisions for institutional treatment of tuberculosis in the ambulant stage, are splendidly equipped for the humane hospital care of the bed case.

In the second place, in spite of our failures and shortcomings in this direction, the hundreds of successfully arrested long-time graduates of our sanatoria are the great constant object lessons of their communities of the feasibility of checking tuberculosis.

It is a pity, in times when demand for sanatoria service is brisk, to have the far-advanced, even though quiescent and institutionalized, individual indefinitely block the prompt admission of the early case because he is occupying the bed that the early case might otherwise have. For this reason, we have begun, of late, to put into effect more and more the policy of definitely limiting the term of residence in the sanatoria. The working out of this policy may seem harsh to the occasional individual, but no one will be forced to leave a sanatorium under the control of the State unless there exist opportunities to go to a local tuberculosis institution, if he will go, or unless his home surroundings are such that he can reside at home and put into application the lessons we have tried to instill into him during his sanatorium residence. We are convinced that the policy is the fairest and best from the standpoint of the greatest good to the greatest number and of giving the maximum economic and social welfare return for the considerable sums of money that the citizens of this Commonwealth have invested in the permanent equipment of the sanatoria, and the large annual sums required to maintain them. I wish to take this occasion to ask your support of the Sanatoria Superintendents and the Director of the Tuberculosis Division of the State Department of Public Health in carrying out this policy.

The great preventive function of tuberculosis hospitals and sanatoria is, I fear, only too often overlooked by the practising physician. It is, in a word, not so much the snatching from the grave of a certain percentage of sanatoria admissions who, but for this privilege, would undoubtedly go on to early fatal result, as it is the elimination to a large degree, so far as these persons are concerned, of their potential powers for mischief as purveyors of massive doses of infection to their intimates, especially those of early age, in their homes and community surroundings. This thought leads naturally to a consideration of the consultation clinic program instituted during the past year by Dr. Gallivan and the Sanatoria Superintendents, with my enthusiastic approval.

The idea back of the consultation clinic innovation was to see if the resident staffs of the State sanatoria could not be made of greater service to the practitioner in solving this all-important point to the consumptive. It is almost impossible to exaggerate how great a bearing upon the prognosis and ultimate outcome of a case of pulmonary tuberculosis early definite diagnosis has.

The almost disheartened, yet perennially hopeful manner in which tuberculosis institution men, whenever and wherever they get together, begin to discuss the reasons why so great a proportion of admissions are found to be advanced, with definite history of six months, one year, or eighteen months, or even longer, before the family physician convinced them, and they began to think seriously of tuberculosis, is witness to the unsatisfactory feature of our present system. The feeling that, perhaps, sanatoria staffs might be of considerable assistance to the practising physician by placing their specialized skill at their disposal, has been growing for several years.

On the other hand, ever since the war began, our sanatoria medical staffs have always been short-handed and, as a result, have always carried as part of their medical complement, junior physicians, who, in the judgment of the superintendents, had not yet received sufficient training to qualify as chest specialists. This condition being gradually improved as the war became further behind us, Dr. Gallivan and the superintendents decided to try out the consultation clinic scheme this past year.

For the sake of clearness and to do justice to the diagnostic ability of the practising physician, it must be clearly stated that our admission histories prove that a tentative, or possible, diagnosis of pulmonary disease is made early by the attending physician in a large percentage of instances, with the net result that the physician at once loses a patient, the patient next consults another physician, and, in many instances, a third, fourth, and a fifth, and all of them considering the symptoms and signs inadequate for a definite diagnosis, neither suggest the possibility of consumption, until at last the patient finds what he is seeking—some one who will definitely assure him that his condition is a bronchitis or flu sequela, or what not—and, resting in this false hope, the victim goes on until the signs and symptoms have become unmistakable, and finally turns to seek institutional treatment, a moderately advanced case, with previous months worse than wasted.

Now, the significant thing about this routine tragedy is, that in that relatively small per cent. when the patient can easily afford the specialist's fee, and his family physician suggests this, even though stating his fears, in nearly all such instances the patient goes, and if the specialist confirms the practitioner's diagnosis, he not infrequently goes to another specialist, but

when he gets two of them, and in most instances as soon as the first expert confirmation is rendered, he accepts it, accepts it with all the implications that the status of an active consumptive carries, and gratefully grasps at the opportunity for "arrest" that is explained, sets his, or her, affairs in order, and makes early application for institutional admission and treatment.

Fundamentally, it is due to our recognition of this psychological process that goes on in most of us whenever a question of tuberculosis is raised, *i.e.*, a denial of its correctness plus a willingness to accept when the question is answered in the affirmative by one recognized as an authority, that led us to experiment with the consultation clinic idea.

Of only slightly less force, however, is our recognition that the diagnosis of incipient tuberculosis is difficult. It is all nonsense for anyone to feel that he can properly expect the general practitioner, or any specialist except an internist actively engaged in chest work, to keep his diagnostic equipment and judgment up to the standard that the suspect ought to have the benefit of. If the general practitioner did enough on that line to fully qualify for authoritative early differential pulmonary diagnosis he, by that very fact, has ceased to be a general man. He must of necessity be devoting so much of his time and brains and energy to this field that he deserves to be classed as a specialist.

On the other hand, any alert practitioner ought to pick out enough danger signs to lead him to desire to have expert confirmation or expert assurance that his fears of pulmonary disease were not justified very early. We feel that in many instances it is the financial obstacle alone that prevents the doctor from obtaining expert advice. It frequently happens, for one reason or another, that the patient will not listen to the suggestion that he seek the excellent diagnostic service of the free municipal or hospital tuberculosis dispensaries.

It was simply in the spirit of endeavoring to fill a public need and to bring to their professional colleagues in general practice expert consultant service, without fee entering into it, to fill the gap which I have just indicated, that the consultation clinics have been instituted.

They should not be confused with the municipal free tuberculosis dispensaries, already of many years' standing and doing a piece of service that our staffs could never remotely approach in volume, and in no wise duplicating or covering the same need that the consultation service does.

THE engagement of Miss Emily B. Hartshorn to Dr. Stuart Mudd, Research Fellow of the Harvard Medical School, is announced. The home of Miss Hartshorn is in Haverford, Pa. Dr. Mudd is a son of Dr. and Mrs. Harvey G. Mudd of St. Louis.

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INTUSSUSCEPTION OF THE ILEUM IN ADULTS, DUE TO BENIGN TUMORS

BIGGS, M. H. (*Surgery, Gynecology and Obstetrics*, November, 1921) writes as follows:

While intussusception is essentially a disease of childhood, it is found in adults with sufficient frequency to make it of surgical importance.

Intussusception in childhood is usually spontaneous. In intussusception in adults a demonstrable lesion can ordinarily be found.

The most common cause for intussusception in the small intestine in adults is a benign tumor.

Benign tumor of the intestine can often be diagnosed before obstruction occurs.

Recurrent invagination is often present previous to obstruction.

After surgical reduction of intussusception, tumor must be sought for and if one is present it must be removed in order to prevent recurrence.

[E. H. R.]

PATHOLOGY OF CHRONIC CYSTIC MASTITIS OF THE FEMALE BREAST

BLOODGOOD, J. C. (*Archives of Surgery*, November, 1921).

The author writes an article of ninety-six pages on this interesting subject which goes into the greatest detail. The contents are grouped under the following headings and the digest of each is amply illustrated by photographs of both gross and microscopic pathology. This is an extremely thorough and painstaking piece of work and adds distinctly to the literature on this subject. It is too detailed, however, for abstracting.

Classification of Chronic Cystic Mastitis (Eight Groups).

Pathology of the Eight Groups in Brief.

Pathology of the Surrounding Breast.

Cancer in the Surrounding Breast.

Incidence of Cancer in Chronic Cystic Mastitis.

Conservative Operation for Different Types of Chronic Cystic Mastitis.

Clinical Diagnosis.

Palpation of Breast.

Exploratory Incision.

What To Do in Case of Doubt.

The Mistake That Should Not Be Made.

The Mistake That Is Made and That Produces No Harm But Mutilation.

The Pathology of the Blue-Domed Cyst.

The Pathology of the Cyst of the Galactocoele Type.

The Pathology of the Diffuse Cystic Breast.

The Pathology of the Nonencapsulated Adenoma.

The Pathology of the Nonencapsulated Area of Chronic Cystic Mastitis, Containing One or More Cysts or Ducts.

The Pathology of the Diffuse Dilatation of the Ducts.

The Pathology of the Nonencapsulated Cystic Adenoma.

Is There Such a Tumor as Adenocarcinoma of the Breast?

The Pathology of the Diffuse Nonencapsulated Cystic Adenoma (Schimmelbusch's or Reclus' Disease).

Cancer and Diffuse Nonencapsulated Cystic Adenoma. /

Cancer and Chronic Cystic Mastitis.

Conservative Operations for Chronic Cystic Mastitis.

The Microscopic Pictures of Chronic Cystic Mastitis.

Classification of Microscopic Pictures.

Comment on the Microscopic Pictures.

Characteristic Histologic Pictures.

Where Pathologists Disagree.

Contributions of the Author to the Literature on Breast Lesions. [E. H. R.]

THE ACHIEVEMENTS AND LIMITATIONS OF NEUROLOGIC SURGERY

FRAZIER, C. H. (*Archives of Surgery*, November, 1921) presents a most interesting review of this type of surgery since its inception. He speaks particularly of various types of tumors and their treatment, also of the so-called "pseudotumors." He devotes several pages to the trigeminal neuralgia and to surgery of the pituitary body, also to tumors of the spinal cord and surgery of the spinal roots. The article is interestingly presented and worthy of review.

[E. H. R.]

A REVIEW OF A YEAR'S SERIES OF INTRACRANIAL TUMORS

LOCKE, CHARLES EDWARD, JR. (*Archives of Surgery*, November, 1921), presents an interesting tabulated review of 255 cases of brain tumor which have passed through the services of Dr. Harvey Cushing during a period of twelve months. The varieties of tumors are described, the visual fields in various forms of tumors are graphically depicted, and the technic variously spoken of. No definite conclusions are drawn for this series.

[E. H. R.]

THE RELATION OF SURGICAL TECHNIC TO GASTROJEJUNAL ULCER

ROEDER, C. A. (*Archives of Surgery*, November, 1921), in a very interesting article treats of jejunal ulcer following gastroenterostomy, and believes that the greatest cause of this complication is scar tissue which binds down the mucous membrane of the jejunum. This is due to faulty technic because of the use of mass sutures which pass entirely through all three coats, thus causing strangulation and later immobilization, with scar tissue, of the mucous membrane. He describes a technic by which gastroenterostomy can be performed and these adhesions of scar tissue avoided. This is accomplished by first freeing the mucosa from the sub-mucosa and muscularis along the edges. The mucosa is sutured separately and the other coats afterward. This gives a free mobile mucosa, and the author believes has great bearing on the non-development of jejunal ulcer.

[E. H. R.]

PREGNANCY AND TUBERCULOSIS

BERNARD, L., in *La Presse Médicale*, November 16, 1921, states that, of 164 cases of tuberculosis seen among women, 31 gave a history of pregnancy or of recent confinement. He concludes:

1. Pregnancy and confinement exert an undoubted influence on tuberculosis.

2. Arrested tuberculosis is often aggravated during pregnancy.

3. Early tuberculosis is more likely to light up following confinement, especially if the mother nurses the baby.

4. Localized, healed tuberculosis shows little chance of becoming active during pregnancy.

5. In pregnancy the woman loses her natural immunity to the tubercle bacillus.

6. Interruption of pregnancy is not a reasonable procedure except in advanced cases. [E. M. D.]

THE ASSOCIATION OF SKIN WITH VISCERAL TUBERCULOSIS

LANCASHIRE, G. H. (*British Medical Journal*, October 8, 1921) presents the result of his work and of others in regard to this subject, concluding:

1. That whereas the casual relationship of primary visceral with secondary cutaneous tuberculosis is already established.

2. The contrary causal relationship is not yet definitely proved. That probably infection of the viscera from the skin does occasionally occur, but that the majority of cases of cutaneous tuberculosis in this respect remain "good lives."

[J. B. H.]

THE TECHNIQUE OF GALL-BLADDER SURGERY IN THE PRESENCE OF JAUNDICE

CRILE, GEORGE W. (*Surgery, Gynecology and Obstetrics*, November, 1921) summarizes his method as follows:

Before operation employ saline infusion, blood transfusion and heat.

At operation employ analgesia, local anaesthesia, means to maintain temperature of liver, decompression of bile, nothing more.

After operation employ blood transfusion: saline infusion, 3,000 to 4,000 cubic centimeters; application of heat to liver; intermittent drainage of bile.

Avoid deep inhalation anaesthesia, needless handling, morphine, doing too much. Decompress and no more.

[E. H. R.]

FACIAL PARALYSIS

GIBSON, A. (*Surgery, Gynecology and Obstetrics*, November, 1921).

The author presents a very interesting and thorough paper on this subject. He discusses specially etiology, prognosis, and devotes the greater part of his paper to treatment. He believes that the most successful operative procedure at the present time is that of facio-hypoglossal anastomosis, although this and any other operative procedure is largely influenced by the features of personal equation of the surgeon, the duration of the lesion, its situation, and a great many other simple but often not appreciated factors. The article is too detailed for brief abstraction, but is of distinct value.

[E. H. R.]

THE TREATMENT OF PYELITIS.

KRETSCHMER, H. L. (*Surg., Gynec. and Obstet.*, December, 1921), writes as follows:

Pelvic lavage with silver nitrate is an efficient, simple method for treating infections in the renal pelvis.

In this series of cases 66.4% of the patients treated were finally discharged with urine sterile and free of pus.

In selecting cases for treatment, lesions of the urinary tract of a surgical nature must be excluded.

Lesions of the abdominal viscera which may be factors in contributing to relapses or rendering this treatment inefficient must be recognized and subjected to appropriate treatment.

Special stress must be laid upon giving the proper attention to lesions of the gastro-intestinal tract.

Lesions of the male and female genital tracts must receive appropriate treatment.

Careful routine examinations of the urine in all cases of obscure abdominal pain should be made before patients are subjected to surgical operation.

[E. H. R.]

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THE MENTAL HYGIENE MOVEMENT.

For the promotion of public health it is necessary that medical research and popular education in medical matters go hand in hand. The results obtained in the laboratory and in the wards are of little avail unless people are interested in the topics, willing to make use of the knowledge gained, know when and where to go for help, and coöperate in organized preventive measures.

It is not enough for the surgeon to know that early operation in cancer is of the greatest benefit; the community must have some information as to the nature of the early symptoms, and as to the favorable outlook with early treatment. It is not enough for the physician to know the advantages of the early treatment of tuberculosis, the public at large must have the importance of early treatment brought home to it. To eliminate typhoid fever the community must realize the relationship between the disease and the water supply, and be willing to finance the necessary community arrangements.

So in regard to mental disorders and defects, it is not sufficient for special workers to make detailed researches into their cause, prevention and treatment; the public must also know something of these facts.

It is more difficult to present this subject in

a simple and appealing way than is the ease with other health movements; the mental hygiene movement, one of the most important health movements of the present day, is thus handicapped by the very scope of its work, and by its close relationship to so many of the major issues of social life.

One may say that the medical profession in general has shown a rather step-motherly attitude to this discipline, and has not as a whole kept in close touch with the progress in the study of mental disorders. The old psychiatry was largely asylum psychiatry, which found its clinical material in the serious cases committed to state hospitals. The attitude of the physician to mental disorders was, therefore, rather special; in regard to other diseases his attention was not so persistently fixed on the most severe conditions, on inoperable cancers, on advanced tuberculosis with cavity formation. The new psychiatry does not have as its chief field of work the state hospital with its severe and advanced cases; it takes up the incipient and borderline cases seen in out-patient clinics and in general hospitals; it studies the mental disorders which masquerade under the form of physical invalidism or of some disorder of conduct, such as alcoholism, delinquency, vagrancy, social or industrial turbulence; it is especially interested in the beginnings of mental and nervous disorders in the child period; it reaches back to the pre-school age.

Prevention is the keynote of much of the work done by the new psychiatry; to put into effect definite measures to deal with these problems requires the coöperation of the community with the medical profession.

As in regard to tuberculosis, so in regard to mental disorders; early treatment is of the greatest importance. Early treatment involves, on the part of the patient and relatives, early attention to symptoms, willingness to take advantage of facilities for diagnosis and treatment; and on the part of the community, it means the provision of the same decent facilities for advice and treatment as exists with regard to other diseases. A man with surgical injury or with cardiac or gastric symptoms, no matter what his financial status may be, knows where to go for aid, and does not hesitate to take advantage of it. In the early stages of mental disorder, when much might be done by an honest attempt to understand and treat the condition, relatives tend to conceal or evade the situation, physicians too often make no detailed analysis of the change in the patient's conduct or mood and of the specific causal factors; general hospitals look askance upon such patients, and even in the largest cities there are few hospitals which have out-patient departments where these important disorders can be treated. When, finally, it is unavoidable that the patient should receive treatment in a mental hospital,

in many states admission is only after a complicated procedure, trial before a jury and a sojourn in the jail sometimes forming a distressing element in the tragedy, not without its effect on the outcome of the sickness.

The cure of this state of affairs, with its mediaeval color, is the education of the public in a common-sense view of these disorders, the education of physicians in the study and treatment of the early stages of mental disorders, the provision of out-patient facilities within easy reach of the average citizen, and of hospital facilities which will be on a par with the hospital facilities for other disorders.

The study of mental disorders shows that often the roots are to be traced to the early influences of childhood; not infrequently early danger signs were in evidence during the school period. If the school is to train children for life, and not merely for college, and if the school has some responsibility for the health of the child, it will have to conceive health in a broader sense than merely as a function of nutrition, resistance to infection, sight and hearing; it will pay some attention to evidence of emotional tension or instability, to wayward traits, to unhealthy habits and social maladjustment. This means a teacher with some insight into the biological characteristics of childhood; it means giving mental hygiene a prominent position in the curriculum of the normal school and college; it means a school physician who knows something about the psychopathology of childhood; it means a school nurse who has had some contact with the nervous disorders of the child and knows about their relation to environmental factors.

Even before the children are of school age it is possible, with efficient community organization and sound medical advice to do much for mental hygiene. Official medicine pays, as yet, little attention to the early formation of habits in regard to food and sleep, and adaptation to the demands of group life, so that tantrums, night terrors, wilfulness as to food habits, anomalous sex activities, odd emotional reactions, receive only incidental attention from physician and nurse. Yet the later personal health of the individual, and his value as a social unit, may depend on the wise management of these early problems.

The above merely touches some of the most obvious problems of this department of preventive medicine.

There is no space to do more than refer to that large army of patients masquerading as gastric, cardiac, genito-urinary, gynaecological invalids, whose symptoms are the expression of fundamental difficulties of adaptation to their human tasks; official medicine treats them in a shabby and superficial manner, and the flourishing condition of many cults is a witness to this failure.

Nor is it possible here to take up the important medical aspect of such problems as alcoholism, delinquency, prostitution, etc.

The point to be emphasized is that the morbid conditions referred to above, whether distinctly called mental disorders or not recognized as such, are as open to study as any other diseased reactions; that a great body of knowledge is available in relation to these problems, and that the time has come to organize on a sound basis preventive work in this branch of medicine.

In the interests of public health, we would recommend:

1. Progressive research into the nature of mental disorders.
2. The establishment of adequate facilities for diagnosis and treatment of early mental disorders in the wide sense of this term.
3. Dissemination of knowledge with regard to these topics among the community at large.
4. A proper emphasis on this branch of medicine in the training of physicians and nurses.
5. Special emphasis on this branch of medicine in the training of all nurses who are going to work in the homes of the community as public health nurses, child welfare nurses, instructive visiting nurses, school nurses, etc.
6. Adequate instruction in mental hygiene for all teachers, and a school organization such that the child with personal problems and emotional difficulties will receive attention, as well as the child with retarded intelligence.
7. Adequate facilities in the courts for the study of those who present indications of either mental disorder or defect, and of juvenile delinquents in general.
8. Introduction into the working principles of all health and charitable organizations of the basic principles of mental hygiene.

It is obvious that this central organizing and coördinating work cannot be carried out altogether by a Federal or State Bureau, and that volunteer organization will be necessary for a considerable period. The Massachusetts Society for Mental Hygiene and the National Committee for Mental Hygiene are at the present moment putting before the community the nature of the work in this field and inviting moral and financial support. The interest shown in a series of meetings in Boston and the vicinity has been very great, and is an indication of the important social need which has called forth these organizations.

THE COUNCIL MEETING.

THIS meeting, held February 1st, was well attended and the business promptly dispatched, but the volume was so great that about two and one-half hours were consumed without delay sometimes incident to long discussions. The

business details and changes in membership will appear later in the Secretary's record. The report of Dr. Frothingham was a clear statement of the theories and methods of osteopathy and chiropractic, and placed in available form about all that is known of these systems. The recommendation that time and money be expended in further study and analysis, is logical, for although it was clearly stated that there is no evidence that either of these systems have any advantages in remedying conditions with known pathology, the mere fact that testimony tends to show that some relief has followed manipulation by these practitioners in unclassified disorders, needs scientific investigation, under methods of control, so that wrong interpretation would be eliminated.

Dr. Stone's reference to the chiropractic bill now before the legislature, was a fitting addendum to the report of Dr. Frothingham's committee, and should lead to a full understanding of the importance of combating the propaganda for State recognition which would break down the standards of this Commonwealth relating to the practice of medicine.

The report of Dr. Gage for the Committee on Rural Health and Sanitation, was a careful analysis of the problems involved and the difficulties in the way of a satisfactory solution of them. The vital importance of better health conditions in the smaller towns and the difficulties inherent in providing adequate medical service, were set forth, and the suggestions made that nothing should be done to discourage the development of the type of the resourceful country doctor who had been of inestimable value in dealing with the perplexities of general practice. In recognition of the functions imposed on, and quality of work done by, the Committee on Public Health, the report recommended that the responsibility be transferred to that last-named committee.

Dr. Bigelow, of the Committee on Public Health, asked for an appropriation of \$2500 for the employment of a field agent. It was quite evident that the members of the Council had no clear conception of the possibilities for good in the work of a field agent, and although it was generally known that Dr. Bigelow's committee had done a great amount of good work and shown great interest in promoting better health, the Council felt that the matter should be considered by the Committee on Membership and Finance, and will wait for its report.

One of the most pleasing incidents of the meeting was the cordial invitation of the Pittsfield Medical Society to the Massachusetts Medical Society, for holding the annual meeting in 1923 in Pittsfield, through Dr. Merrill. There was an enthusiastic acceptance of this invitation, and many expressions of pleasant anticipation of the outing features which would tend

to relieve the monotony of scientific discussions. This evidence of interest in the Society from Berkshire is gratifying.

The election of Dr. Edwin H. Brigham to the office of librarian *emeritus*, was a graceful recognition of the long service rendered by Dr. Brigham. The modest annuity recommended by the Committee on Membership and Finance was enthusiastically approved.

Before closing, the President made an earnest plea for active interest in legislative matters and assistance for the efforts of the Committee on State and National Legislation.

MEDICAL NOTES.

THE JOURNAL has been fortunate in being able to secure, at times, interpretative editorials on medical subjects. Last week, the article on pneumonia, and in this issue the one on mental hygiene, are from authoritative sources.

THE Medical Faculty of Vienna is offering for January, February and March, 1922, extensive post-graduate courses in nearly all branches of medicine. An especially detailed course in Diseases of the Digestive Tract is offered. In June, 1922, will be given a course on Progress in Internal Medicine and Allied Subjects, with Especial Reference to Therapeutics. For detailed information, address Prof. Dr. Arnold Durig, Dekan der Wiener medizinischen Fakultät.

DR. STORER HONORED.—OLDEST LIVING GRADUATE OF HARVARD CONGRATULATED BY RHODE ISLAND HARVARD CLUB.—Dr. Horatio R. Storer, the oldest living graduate of Harvard, who will be 92 years of age February 27, was honored by the Harvard Club of Rhode Island, which held its annual dinner in Providence recently. The Secretary was directed to send a congratulatory message, which was received by Dr. Storer at his home on Washington Street. The message was as follows:

"Dr. Horatio R. Storer, 58 Washington Street, Newport, R. I. The members of the Harvard Club of Rhode Island, assembled tonight for their annual dinner, extend their heartiest congratulations and good wishes to Harvard's oldest living graduate.

"PAUL A. MERRIMAN, *Secretary.*"
—Newport, R. I., News.

REWARD FOR CURE OF CANCER.

It is reported that Sir William Veno, of Manchester, England, has offered \$50,000 as a supplementary prize to the \$100,000 offered by Lord Athalstan, of Montreal, for the discovery of a cure for cancer within five years. The cure must satisfy the Royal College of Physicians and Surgeons of London.

NEWS ITEMS RELATING TO TUBERCULOSIS.

On January 23, Dr. John B. Hawes, 2nd, gave an illustrated talk before the Cambridge Medical Improvement Society on the subject of "Tuberculosis in Childhood, and Its Prevention."

On Thursday, February 2nd, Dr. Hawes spoke before the Norfolk County District Medical Society on "The Diagnosis and Treatment of Tuberculosis in Adults and Children."

The Executive Committee of the Boston Tuberculosis Association has decided that the Prendergast Camp, now used for a few exsanatorium patients, will be opened as soon as possible for approximately twenty children during the spring, summer and fall months. These children will spend both day and night at the camp. Certain alterations will be made in order to accomplish this plan. Dr. William H. Devine, Director of School Hygiene for Boston, has given assurance of support from the city for teaching and equipment. While this plan is not ideal it is believed that a demonstration can be made which will appeal to the citizens of Boston so that necessary funds can be raised, and thereby the institution will be able to care for a large number of children throughout succeeding years.

Dr. Hawes has an excellent set of lantern slides, showing Preventoria and work among children at Toronto, Detroit, and elsewhere, which are available for talks and demonstrations on the subject, for any organization desiring this material.

The Boston Association will be glad to try to provide speakers.

Applications may be made to Dr. Hawes, 11 Marlboro Street, Boston, or Miss Billings, at the Association rooms, 3 Joy Street, Boston.

THE LEGISLATURE.

CHIROPRACTIC.

House—No. 631.

Accompanying the petition of Harry N. Guterma, relative to chiropractic, has been referred to the Committee on Public Health.

The act regulates the Practice of Chiropractic and provides for the Examination and License of Chiropractors and the Appointment and Maintenance of a Board of Examiners.

It provides as follows:

Section 1. Any person shall be eligible for examination after the passage of this act, who is a graduate of a recognized incorporated school or college of chiropractic, giving adequate courses of anatomy, physiology, symptomatology and diagnosis, hygiene and sanitation, chemistry, histology, pathology, principles and practice of chiropractic, requiring actual

attendance for three school years of not less than six months each, provided that after January first, nineteen hundred and twenty-three, every such applicant for examination shall submit to the examining board here constituted satisfactory proof of his possession of a preliminary education equal to that of a standard high school.

Section 2 directs that applicants shall make written application for examination of the board, and shall pay a preliminary fee of fifteen dollars. The application shall state the name, age, sex, and the residence of the applicant; the name and location of the school or college of which he graduated, the length of time devoted to the study of chiropractic, the date of graduation, the experience of the applicant, if any, in the care of the sick as interne or clinical assistant under any regular licensed preceptor. The application shall be signed and verified by oath of the applicant.

Section 3 creates for the purpose of examining applicants for license as chiropractors, a board of chiropractor examiners, which shall be appointed by the governor, and shall be composed of three members who are fully equipped and qualified chiropractors.

Section 4 deals with the organization of the board. Members shall hold office for three years, provided that the term of office of one member shall expire in one year, one in two years and the other in three years, and one member annually thereafter, and shall elect a president and secretary-treasurer annually, and shall adopt rules and regulations. No appointment to fill a vacancy shall be made of any person who has not been continuously engaged in the practice of chiropractic within the state of Massachusetts for one year next preceding such appointment.

Section 5 provides that the board of examiners shall hold regular sessions for examinations of candidates to practice chiropractic, and other business.

Section 6. The board shall conduct written examinations in anatomy, physiology, symptomatology and diagnosis, hygiene and sanitation, chemistry, histology, pathology, obstetrics, gynecology, spinography, orthopedia, adjutology, and principles of chiropractic, and shall further require each candidate for license to give a clinical demonstration of vertebral palpation, nerve tracing and adjusting. Each candidate must answer correctly at least sixty per centum of the questions propounded in every subject and seventy-five per centum of questions propounded, besides making satisfactory clinical demonstration, to be entitled to a license. When it shall have been determined by the board of examiners that any candidate has passed successfully the examination and has made satisfactory demonstration of the clinical

art, and is a person of good moral character, there shall be issued to such candidate a license to practice chiropractic, which must be countersigned by the president and the secretary-treasurer of the board of examiners and authenticated by the official seal. The fee for the license shall be five dollars and shall be paid to the secretary-treasurer of the board of examiners before the delivery of the license. Before any chiropractor shall be allowed to practice his profession in this state his license shall be recorded in the office of the recorder of the county in which he resides, or practices his profession, and the county recorder of such county shall record such license and the fee therefor shall be fifty cents. Any one failing in his examination shall be entitled to a second examination, without further fee, at the next regular session.

Section 7. Any person who has been bona fide, regularly and continuously engaged in the practice of chiropractic in the State of Massachusetts on the passage of this act and who shall have submitted to the board of examiners proof of good moral character and evidence that he possesses the degree of knowledge and skill required in section one hereof, or its equivalent in the discretion of this board, shall be granted a license without examination, and any other person who is in actual practice in the state of Massachusetts at this time and of good moral character shall receive a license to practice chiropractic in the state after having passed a satisfactory examination in anatomy, physiology, symptomatology and diagnosis, histology, pathology, hygiene and sanitation, chemistry, histology, pathology, obstetrics, gynecology, spinography, orthopedia, adjustology, and principles and practice of chiropractic, such license shall be issued, upon the payment of the fee of twenty dollars, to the secretary-treasurer of the board of examiners and shall annually thereafter, pay a renewal fee of two dollars per annum, provided, however, the application for such license shall be made within thirty days after the appointment of board of examiners. Provided further that any person holding a license issued by the board of any other state, having requirements equal to those provided in this act, shall be entitled to license without examination at the discretion of the board upon payment of the fee of twenty dollars and furnishing to said board of examiners satisfactory evidence of his good moral character.

Section 8. Any school or college duly organized and incorporated giving a course of study in the following subjects: anatomy, physiology, symptomatology and diagnosis, hygiene and sanitation, chemistry, histology, pathology, obstetrics, gynecology, spinography, orthopedia, adjustology, and principles of chiropractic, requiring an attendance of three school years of

six months each, is hereby determined to be a standard school of chiropractic and subject only to the limitations of this act, and entitled to every privilege of other schools and colleges of healing in this state.

Section 9. The board of examiners may refuse to grant a license to any person otherwise qualified and shall revoke any license issued by it to any chiropractor who is not of good moral character, or who solicits professional patronage by agents, or who is guilty of false and fraudulent representations as to his skill and ability, or who is guilty of gross unprofessional conduct, or for incompetency, or for habitual intoxication or use of narcotic drugs or for fraud or deception in the procurement of his license. The right to a hearing and the right of appeal are provided for in other clauses.

Section 10. The practice of chiropractic shall be deemed to be the adjustment by hand of the articulations of the spine and other incidental adjustments according to chiropractic methods; but it shall not include operative surgery, osteopathy, nor the administration or prescribing of any drug or medicine now or hereafter included in materia medica. Chiropractors shall, subject to the limitations of this act, be entitled to all the rights and privileges of physicians and surgeons and shall be subject to all the duties and obligations prescribed by the statutes of this state in so far as the same are not inconsistent with the provisions of this act. Every chiropractor shall place on all signs used by him, and display prominently in his office the word "chiropractor."

Section 11 provides against fraudulent representations and crimes.

Section 12 provides for the financial details of the board management.

Section 13 provides that the act "shall take effect and be in force on and after its publication in the Massachusetts capitol newspapers published in Boston, Massachusetts, without expense to the state."

This bill represents a peculiarly insidious and dangerous attempt to undermine and nullify the present admirable provisions of the statutes regulating medical registration. The courts have recently defined very clearly what constitutes the practice of medicine. Under this definition osteopathy is the practice of medicine, and chiropractic must inevitably be so considered. Therefore to be registered for the practice either of osteopathy or chiropractic, one must first demonstrate to the Board of Registration one's qualification to practice medicine. The attack which the chiropractors contemplate upon this fundamental and essential regulation will be presented with all the energy of effort and expenditure of funds which have characterized their campaigns in other states, and it cannot be too earnestly urged upon all members of our profession that they

have a duty in explaining to their friends, and more particularly to the representatives of their district, the menace which lies in an apparently innocent bill.

MATERNITY AID.

In addition to the bill which would carry out the recommendation of the Department of Public Health that the State accept the provisions of the Sheppard-Towner bill, other measures have been introduced.

House 966 introduced, on petition of Wendell P. Thore, provides among other matters, for invalid pensions. Under its provisions, every person over twenty years old, not an alien, residing in the state for at least twenty years, who has become permanently incapacitated or blind, who is not receiving other support or has claims for adequate support from others, is eligible for a pension, the amount of which would be determined by the authorities.

Maternity benefits are specifically included in the following sections:

"Every woman in need about to become a mother, shall, while in this commonwealth, be qualified to receive the maximum pension allowed under this act, and shall be furnished with all necessary medical, surgical, nursing, obstetrical or other aid, material or appliances during the maternity period.

"The maternity period of any pensioner shall not exceed nine weeks, of which six shall be subject to delivery of child, and any woman receiving a pension under this section must abstain from gainful employment during the payment period of such pension.

"In cases of extreme need of a pensioner under this section, the central pension authority, or others authorized by him, may increase the amount for such pension period, but a pension for such period shall not exceed fifty dollars."

Senate 62 provides for aiding mothers with dependent children.

Miss Spencer has again introduced her bill (Senate 259). This bill has been thoroughly discussed in previous years. It is a poor relief measure which imposes upon the Department of Health the duty of investigating the needs of applicants for aid and the granting of aid to those found worthy. Under the provisions the applicant would receive and must accept instruction in general hygiene and infant care, hospital care or home nursing or medicine and medical care and other necessary obstetrical care, and, if necessary, would receive financial aid of not more than twelve dollars a week.

Maternity cases are not to be treated by a city or town physician. The recipient of aid may choose her own physician and registered nurse, subject to their acceptance of the fee table and other regulations established by the Department of Public Health. The minimum fee for the physicians is set at fifteen dollars.

This bill has been opposed by your Joint Committee. It will be heard before the Committees on Public Health and Social Welfare, sitting jointly.

RABIES.

House 744, on petition of Herbert A. Bartlett, directs that the Department of Public Health manufacture and distribute anti-rabietic serum, to be sold at a price not to exceed \$40 for a complete treatment.

SALARIES.

House 766 provides that the maximum compensation of the chairman of the Board of Registration of Nurses be increased by omitting in the case of that member of the board the provision that the total compensation to any member shall not exceed one hundred and fifty dollars a year. The law provides for five dollars a day for each day spent in performance of duties, but fixes a maximum.

Senate 194 provides, on petition of Walter C. Myers, that the compensation of the heads of departments and members of boards and commissions be reduced as follows: \$3,000-\$3,500, 5 per cent.; \$3,500-\$5,000, 10 per cent.; \$5,000-\$7,500, 15 per cent.; \$7,500 and over, 25 per cent. The bill provides further, that the members of the Board of Dental Examiners, the Board of Registration in Embalming, and the members of all other boards or commissions meeting less frequently than once in every two weeks during the year, shall be paid at the rate of eight dollars for each meeting attended, and in no case more than four hundred dollars a year.

Senate 178, introduced on petition of Frank A. Murphy provides that the Trustees of Tuberculosis Hospitals shall receive such salaries as the Governor and Council may determine.

The trustees are the county commissioners under existing law.

VACCINATION.

The opponents of vaccination have introduced another bill (House 1056) which strikes out entirely all reference to vaccination as a prerequisite to admission to public schools.

MISCELLANEOUS BILLS.

Two bills (House 912 and House 913) have been introduced to make insanity a ground for divorce, after five years confinement in an institution, and if the condition is considered incurable.

Several bills have been introduced which provide that the State take over the County Tuberculosis Hospital (House 613 and House 875). House 781 provides that this be done in the case of the Essex County Tuberculosis Hospital in Middleton.

On petition of Dr. Kline, House 1058 provides that the Massachusetts School for the Feeble-Minded be known as the Massachusetts State School.

On petition of Dr. E. H. Bradford, Senate 293 is introduced, which will permit the Department of Health, in order to prevent blindness or deafness, to send patients to the Massachusetts Charitable Eye and Ear Infirmary, or other hospital, for treatment, and to pay such parts of ordinary and reasonable charges as the patients are unable to pay.

House 1057, introduced on petition of John G. Gordon, contains the following drastic provisions.

"No nurse or attendant in any hospital or asylum, public or private, shall be allowed to remain on duty more than eight hours during any one day, nor be allowed to sleep in the same room or in a room adjoining and communicating with any room where any patient is kept, or in any room to which patients have access."

Senate 292, introduced on petition of Thomas F. Donovan, would meet the needs of small towns, thus:

"The governor shall appoint ten doctors in areas which have no doctor and pay them the sum of fifteen hundred dollars."

House 745 and House 746: the first requiring the physical examination of persons employed in hotels and restaurants, and the second requiring inspection by boards of health of hotels, restaurants, storerooms and larders, have been already reported leave to withdraw.

Obituaries.

DORVILLE MILLER WILCOX, M.D.

DR. DORVILLE MILLER WILCOX, of Lee, Mass., died at Pittsfield, January 24, 1922.

Dr. Wilcox was born in 1841, attended the Berkshire Medical Institution in Pittsfield, receiving an M.D. there in 1866, the year before the school closed its doors, and practised until a few years ago, in Lee. He served in the Union forces during the Civil War, from 1861 to 1864, practised a short time in New York State, for a year in Becket, and in 1888 in Falls Village, Conn. From 1870 to 1889, he was a fellow of the Massachusetts Medical Society. For forty-five years he was a member of the school committee of Lee, and was also medical examiner for that district.

Dr. Wilcox was a collector of Indian relics, leaving a fine collection, and his extensive library was rich in biography and local history. A wife and children died several years ago.

HARRISON GRAY BLAKE, M.D.

DR. HARRISON GRAY BLAKE died on his fifty-eighth birthday in his native town of Woburn,

January 26, 1922. The son of Ebenezer Norton and Harriet Cummings Blake, he lived all his life in the house in which he was born. He was educated in the Woburn schools and in the class of 1888 in Harvard Medical School, joining the State Medical Society in the same year. From 1897, Dr. Blake was medical examiner for the Fourth Middlesex District for two terms, and then was city physician and school physician of Woburn. He was a member of the Massachusetts Medico-Legal Society. His health was undermined during the influenza epidemic, when he acted as assistant to the State Department of Health in combating that disease, and had been failing since. He is survived by two daughters and three sons, his wife, who was Miss Lizzie Dodge, of Woburn, having died over five years ago.

WILLIAM ROWLEY, M.D.

DR. WILLIAM ROWLEY died at his home in Lanesville, Gloucester, January 29, 1922. He was born in Oreston, England, in 1864, came to this country with his parents while yet a boy, studied medicine at the Baltimore Medical College, taking his M.D. in 1893, and settled in Lanesville, where he became a busy general practitioner. Among the first to use an automobile to make professional visits, he covered the northern side of Cape Ann in a strenuous practice, wearing out many cars. In 1897, he joined the Massachusetts Medical Society, and at the time of his death was a member of the staff of the Addison Gilbert Hospital.

He leaves a widow, whose maiden name was Nellie Saunders, a daughter, and a son, Philip William, a graduate of Tufts College Medical School, a member of the State Medical Society, and now city physician of Gloucester.

Miscellany.

THE SPEECH READERS' GUILD.

AN ANNIVERSARY.

It is to be supposed that few, if any, physicians outside of Boston, and probably only otologists in that city, are acquainted with the activities of a club that celebrated its sixth birthday on Friday, January 20th, at its comparatively recent home at 339 Commonwealth Avenue. The club referred to is The Speech Readers' Guild of Boston, Inc., and boasts a membership of five hundred men and women, all but a very few of whom are at least partially deaf. Active membership, with the power to vote and hold office, is accorded only to the hard of hearing. There are a few associate members who can hear.

This club is deserving of the sympathy, respect and support of the medical profession for

many reasons. It was founded six years ago, by 35 deafened women, who felt that the need for self-expression was paramount with the deaf. Sensitive, and shrinking from the outside world, on account of their infirmity, too many people give up the unequal struggle, and lapse into a state of melancholy and indifference that soon becomes morbid. Every doctor knows that, in order to aid the power of hearing, he must build up the entire nervous system. Happiness is the best road to this end, and happiness can never be found in utter seclusion. As this club, which is composed of, and entirely officered by the partially or wholly deaf, exists for the one purpose of bringing back to normal activity and happiness the lives of those cut off from the world by the handicap of deafness, it is the one place to which the doctors should direct their patients, and which can materially aid in the readjustment of lives.

As its name suggests, speech reading is among the first aids it offers. Though it does not profess to teach speech reading, it stimulates all to study that eye language, and offers many and various classes and entertainments which aid much in its development. The wonderful sympathy and understanding of all the members make each new-comer feel at home at once, while the nominal due of one dollar a year opens the door to rich and poor alike. There is never any impatience at a failure to comprehend the spoken word, for all are too keenly aware of their own limitations to be unjust to others.

Apart from this spiritual uplift, which goes so far to stimulate recovery, the Guild has now at its disposal other aids of a more material nature. The Guild House is equipped not only for the accommodation of its transient members, but has furnished rooms to rent to any student of speech reading, or to any patient who may want to come to Boston for treatment.

For the information of physicians be it said, that a person does *not* have to be a member of the Guild to avail himself or herself of the privileges of renting a room and obtaining meals at the Guild. If a person is deaf, and needs just the sort of protection and interest the Guild can offer, he is welcome to seek its hospitality. Thus, if a physician in some town should feel it advisable to send his deaf patient to Boston for special treatment, he would be at liberty to direct the patient to 339 Commonwealth Avenue, and be sure of gaining entrance there, provided there was a vacancy—which it would be well to ascertain beforehand.

Though hoping, in the course of a few years, to be on a paying basis, the Guild has grown so rapidly that, at present, its activities have far outdistanced its income, and it is as worthy a cause for charity as can well be found.

Every physician is welcome, at any time, to visit the Guild House, which is open daily, except Sundays and holidays, from nine to five. And almost every evening will find some of its members there, engaged in either class work or recreation of various kinds.

(Mrs. Charles D.) ANNIE R. KNOWLTON,
Director and Chairman of Educational Committee of The Speech Readers Guild.

FEDERAL INCOME TAX.

WHO? Single persons who had net income of \$1,000 or more, or gross income of \$5,000 or more. Married couples who had net income of \$2,000 or more, or gross income of \$5,000 or more.

WHEN? March 15, 1922, is final date for filing returns and making first payments.

WHERE? Collector of internal revenue for the district in which the person lives, or has his principal place of business.

HOW? Full directions on Form 1040A and Form 1040; also the law and regulations.

WHAT? Four per cent. normal tax on taxable income up to \$4,000 in excess of exemption. Eight per cent. normal tax on balance of taxable income. Surtax from 1 per cent. to 65 per cent. on net incomes over \$5,000 for the year 1921.

In making out his income tax return for 1921, the average taxpayer will find a considerable saving in comparison with the amount of tax paid on the same income for 1920.

The exemptions provided by the revenue act of 1921 are \$1,000 for single persons (the term including widows, widowers, divorcees, and persons separated from husband and wife by mutual agreement), \$2,500 for married persons whose net income was \$5,000 or less, and \$2,000 for married persons whose net income was \$5,000 or more. Under the revenue act of 1918 the personal exemption allowed a married person was \$2,000, regardless of the amount of net income. The personal exemption allowed a married person applies also to the head of a family, man or woman, who supports in one household one or more relatives by blood, marriage, or adoption.

The exemption for dependents—a person who receives his chief support from the taxpayer and who is under 18 years of age or incapable of self-support because mentally or physically defective—is increased from \$200 to \$400.

The act requires that a return be filed by every single person whose net income for 1921 was \$1,000 or more, every married person whose net income was \$2,000 or more, and by every person—single or married—whose gross income was \$5,000 or more.

The requirement to file a return of gross income of \$5,000 or more regardless of net income is a new provision. Net income is gross income less certain specified deductions for business expenses, losses, bad debts, etc., which are fully explained on the forms.

Returns must be filed by married couples whose combined net income for 1921, including that of dependent minor children, equaled or exceeded \$2,000, or if the combined gross income equaled or exceeded \$5,000.

The period for filing returns is from January 1 to March 15, 1922. Heavy penalties are provided for failure or "willful refusal" to file return on time.

Forms 1040A for incomes of \$5,000 and less, and 1040 for incomes in excess of \$5,000, may be obtained from the offices of collectors of internal revenue and branch offices. The tax may be paid in full at the time of filing the return, or in four equal installments, due on or before March 15, June 15, September 15, and December 15.

Changes in the revenue law are of material benefit to the average family man. Under the revenue act of 1921 a married person, living with wife or husband, whose net income for 1921 was \$5,000 or less, is allowed a personal exemption of \$2,500. Under the revenue act of 1918 the exemption allowed a married person was \$2,000, regardless of the amount of net income.

The normal tax rate is the same—4 per cent. on the first \$4,000 of net income above the exemptions, and 8 per cent. on the remaining net income. Given his personal exemption of \$2,500, plus \$400 for each dependent, a married man with three children—the average American family—will pay, this year, on a net income of \$4,000, a tax of \$12. On the same income for 1921, he would have paid a tax of \$56.

Every citizen and resident of the United States must determine for himself whether his income for 1921 was sufficient to require that a return be filed. Full instructions for making out a return are contained on the forms, a copy of which will be sent to taxpayers who filed a return last year. Failure to receive a return, however, does not relieve a taxpayer of his obligation to file a return on time, on or before March 15, 1922. Forms may be obtained from collectors of internal revenue and branch offices.

INFANT MORTALITY IN 1921.

THE DEPARTMENT OF COMMERCE, through the Bureau of the Census, announces that provisional infant mortality rates in 51 cities, based on estimated births for 1921, and the weekly telegraphic reports of deaths to the Bureau of

the Census, indicate record low rates throughout the country last year.

For the group of 51 cities the infant mortality rate is 74 per 1,000 births as against a rate of 90 in 1920 for 44 cities. The lowest infant mortality rate—47 per 1,000 births—appears for the cities of Portland, Oregon, St. Paul and Seattle, and the highest rate—111—for Fall River.

The greatest decrease since 1920 appears for Lowell, with a rate of 90 for 1921 against a rate of 135 for 1920.

No city shows a higher rate for 1921 than for 1920, though Albany and Salt Lake City maintain the same rates for the two years—77 and 72, respectively.

Below appear infant mortality rates (deaths under one year of age) for a few Massachusetts cities in the birth registration area, for 1920 and 1921:

Boston: In 1921, births, 19,536; deaths, 1,483; per 1,000 births, 76. In 1920, deaths, 1,966; per 1,000, 101.

Cambridge: In 1921, births, 2,856; deaths, 192; per 1,000 births, 67. In 1920, deaths, 274; per 1,000, 96.

Fall River: In 1921, births, 3,537; deaths, 413; per 1,000 births, 111. In 1920, deaths, 458; per 1,000, 129.

Lowell: In 1921, births, 3,154; deaths, 279; per 1,000 births, 90. In 1920, deaths, 425; per 1,000, 135.

New Bedford: In 1921, births, 3,507; deaths, 347; per 1,000 births, 99. In 1920, deaths, 429; per 1,000, 122.

Springfield: In 1921, births, 3,419; deaths, 238; per 1,000 births, 68. In 1920, deaths, 290; per 1,000, 85.

Worcester: In 1921, births, 4,809; deaths, 370; per 1,000 births, 77. In 1920, deaths, 410; per 1,000, 85.

ANNUAL REPORT OF THE BOSTON CITY HOSPITAL.

THERE has just come to hand the fifty-seventh annual report of the Trustees of the Boston City Hospital. This report covers the period February 1, 1920, to January 31, 1921. From the standpoint of hospital economies, it is interesting to note that the cost per day for a ward patient was \$3.70, and the cost per visit for an out-patient was 71 cents. The cost of uncooked food per day, per patient, was 52 cents.

From the medical point of view, the activities of the special services, called the Blood Service and the Pneumonia Service, were of particular interest. The members of each of these services have published a number of papers concerning the research as undertaken by them. These publications attest to the value of intensive study.

To quote from the report:

"The chief accomplishments for the past year are summed up as follows:

"The establishment of a pneumonia laboratory.

"Installation of a new special diet kitchen for the preparation of weighed and measured diets.

"Establishment of a complete electrohydrotherapeutic department.

"Installation of a cardiograph, and organization of a heart clinic.

"Organization of a nutrition clinic.

"Segregation of diabetic and nephritic cases, to which Wards Q and R have been assigned, and a room for metabolic work.

"Segregation of eye, ear, nose and throat cases in Ward O.

"A new laboratory, fully equipped as a department for immunization, and remodeling of the third pavilion at the South Department, into cubicles and small rooms, for the proper isolation of communicable diseases."

Correspondence.

IN THE TIMES OF LETTSON AND
MARK AKENSIDE.

31 Massachusetts Avenue, Boston.
January 24, 1922.

Mr. Editor:

The following is from Pettigrew's "Memoirs of John Coakley Lettson," London, 1817. The incident occurred just after Lettson's arrival in London from his apprenticeship at Settle. In London, Lettson was under the protection of the celebrated Fothergill, who became almost a parent to him.

"The distance of his apartment was convenient for attendance at St. Thomas Hospital, where he entered as Surgeon's dresser, under Benjamin Cowell, Esq.

"The other Surgeons were Mr. Baker and Mr. Smith, men of no great eminence. The Physicians were Akenside, Russell and Grieve. Lettson was early fond of poetry and had read the 'Pleasures of Imagination' with admiration. He anticipated great pleasure in coming under the Author's notice, for, by a small premium, a Surgeon's pupil is admitted to the practice of the Physicians of the Hospital.

"Great, however, was his disappointment in finding Dr. Akenside the most supercilious and unfeeling Physician that he had hitherto known. If the poor, affrighted patients did not return a direct answer to his queries, he would often instantly discharge them from the Hospital. He evinced a particular disgust to females, and generally treated them with harshness. . . .

"One leg of Dr. Akenside was considerably shorter than the other, which was in some measure remedied by the aid of a false heel. He had a pale, strumous countenance, but was always very neat and elegant in his dress. He wore a large white wig and carried a long sword. Lettson never knew him to spit, nor would he suffer any pupil to spit in his presence. One of them once accidentally did so, yet standing at some distance behind him. The Doctor instantly spun round on his artificial heel, and hastily de-

manded, who was the person who spit in his face? Sometimes he would order some of the patients, on his visiting days, to precede him with brooms to clear the way, and prevent the patients from too nearly approaching him."

It is of interest that Dr. Lettson was born one of twins (Nov. 22, 1741), and that he told Mr. Pettigrew, his biographer, that his mother had seven twin pregnancies, all the offspring being males. He and his twin brother were the last children born, and the only ones that lived.

In the delightful correspondence which passed between Dr. Cuming and Dr. Lettson, Dr. Cuming took occasion to warn Dr. Lettson of possible superficiality in diagnosis and examination, in the hurry and tension of his immense practice. (Lettson frequently prescribed for fifty patients before breakfast.)

Dr. Cuming says, "When I hear of you, and others of the *primates* of the profession in London visiting your fifty or a hundred patients in a day I am thankful that I am not one of the number. . . . I often recall to memory an anecdote told by the late Dr. Sutherland of Bath. While at Paris, he attended *L'Hôpital de la Charité*. One day he accompanied the physician running through one of the wards to visit the patients, a friar trotting after him with his book in hand to minute down the prescriptions—the Doctor stops at a bed, and calls out to the person in it, with the utmost precipitation, *Toussez vous? sucez vous? allez vous a la Selle?* then instantly to the friar, *Purgez le! Monsieur, il est mort*, replied the friar. *Diable! Allons!* said the Doctor, and galloped on with rapidity."

Very truly yours,

WM. PEARCE COUES, M.D.

INFLAMMATION OF THE MIDDLE EAR.

49 Pearl St., Worcester, Mass.,
January 24, 1922.

Mr. Editor:

In the JOURNAL of September 29, 1921, was published a description of the massotherapy with cases emphasizing suction in acute middle ears.

Probably the most feared form of inflammation of the middle ear, is caused by the snuffing of water from swimming, or nasal douching, through the eustachian tube into middle ear. Generally, if there is much fluid the pain is immediate and intense. Rarely is there relief, till paracentesis of m.t. is done. Therefore, the following case is of interest.

Mrs. C. E. P., 32 years, well nourished and showing severe pain. A member of the Women's swimming class of the Boys' Club. About 11 A. M., while diving snuffed up water. Intense pain in left ear, immediate and agonizing. Came directly for treatment. Physician not at home, would return at 1.30 P. M. Patient consulted another aurist, who advised paracentesis at once. Refused operation. Pain continued to increase.

Examined patient at 1.45 P. M. Bulging m.t., bluish gray color with prominent blood vessels. Velvet red color over periphery, and extending. Advised paracentesis for immediate relief, but thought the massotherapy might relieve, although slowly. Patient chose the latter method. Applied pure suction for five minutes with very little relief, then gradually pain became bearable, and bulging had perceptibly decreased. Continued for 15 minutes the suction method. Given ear drops, carbol-glycerine, 1-15. Telephones at 8 P. M., pain is gone, and at 8 A. M., next morning, comfortable, with good night. Excused from further treatment.

I am,

Very truly yours,

JAMES TAYLOR, JR., M.D.

CRITICISM OF MEDICAL SCHOOLS.

New York, January 29, 1922.

Mr. Editor:

Your editorial in the JOURNAL for January 26, 1922, is admirable in every particular and should be carefully and widely read. Especially is this true for all specialists. That they are useful and necessary in today's practice of medicine is unquestionable; but when they absorb, as they now do, much money and honor from the public, and the general practitioner is practically out of it very soon after he begins to take care of any patient, except the poorest, it is a sad commentary on the ignorant and contracted vision of those who should, who, indeed, do know better. In all consultations the internist should finally reign supreme, and his dictum is the one to follow. When I say consultant, I do not mean merely the great man who is called in when the patient is in a critical state. I refer also and much more to the family doctor, who, knowing fully the peculiarities and real needs of the patient, can give advice, or counsel, which is almost invariably most valuable, if it were simply followed. Alas, nowadays and more and more, it is wholly ignored, or put aside. Hence it is that the all-around good, conscientious practitioner has, indeed, become "rara avis"—more's the pity and shame of it!

BEVERLEY ROBINSON, M.D.

129 East 35th Street.

THE FLEXED SPICA TREATMENT OF HIP FRACTURES.

A Reply to Dr. Whitman.

167 Newbury St.,
Brockton, Mass.,
Jan. 14, 1922.

Mr. Editor:

Constructive criticism is the greatest stimulus to progress.

To "The many theoretical and practical advantages of the original method" of abduction over my modification, which Dr. Whitman has mentioned in his communication of December 16, 1921, I wish to make a brief reply.

The question of the method of reduction in the cases in which I have felt that it was a justifiable procedure, is one which permits of little argument between us. I am somewhat more conservative in regard to the treatment of impactions in aged patients than was my practice a few years ago. As I have stated in my articles, the mode of reduction which I have used differs in no essentials from that practiced by Dr. Whitman. The fragments of the neck are disengaged or "moulded" and the leg brought down in full extension to the length of the healthy member.

The efficiency of the maintenance of reduction with the thigh in a flexed position, as compared with full extension during the application of the spica is a debatable point.

After reduction, traction on the leg which was in the line of the trunk is gradually changed as the thigh is flexed to right angles with the trunk and the leg to right angles with the thigh. When preparations are complete for application of the flexed cast, traction is maintained by an assistant upward from the trunk and outward with the thigh in full abduction. The lower leg, flexed at right angles with the thigh, is used as a lever for traction upward on the thigh. The pelvis is firmly bandaged to the sacral support and the healthy leg held in full abduction and flexion so that the pelvis is not rotated toward the injured hip. The cast is then applied to the trunk and leg well down on the calf. When

this part of the cast has "set" there is no possible chance of contraction of muscles of the thigh causing displacement of the fragments. It is granted that the assistant may not maintain a constant traction during the application of the cast and thus allow the fragments to become displaced. This is the personal equation which enters into treatment of all fractures. X-rays of many of my cases taken after the application of the cast have thus far failed to reveal this accident. A study of the muscles of the thigh in the position of right-angled flexion to the trunk reveals the fact that the power to pull the shaft up past the neck fragment is pretty much out of commission.

"The tendency of the thigh fragments to sink backward under the influence of gravity" in full extension has been mentioned in many other articles of Dr. Whitman. His method of correction is by applying the straight spica so that it acts as a splint.

In the flexed position the tense gluteus maximus and medius muscles automatically pull the trochanter forward and correct this difficulty, forming a natural splint. I have mentioned this fact in both of my articles on hip fractures. It is of importance in preventing eversion of the foot after union has occurred. Of the 60% of cases with good results in my series, none had eversion.

Lordosis of the lumbar spine and relaxation of sacral articulations have given me little concern in the use of the flexed cast. The sitting position and active exercise in a wheel chair have eliminated these complications.

Decubitus and pneumonia, I have mentioned as a cause of death in one case. This was a case which I did not attend after applying the cast and was the result of extreme neglect by the nurse. In none of the others where proper nursing care had been carried out were these complications present.

I might add that the nursing care of these cases is extremely simple. Aside from getting them up in a chair in the morning and back to bed at night, there is little else done for them by the nurse. Compared with the usual nursing care of a hip fracture case, there is a great saving in the amount of nursing required.

The question of the sitting *vs.* dorsal position in the treatment of hip fractures should be of interest to every surgeon who treats these cases.

Regardless of the method of treatment used in a given case, if symptoms of hypostatic congestion occur, the accepted treatment is to raise the patient's head. If this treatment does not clear up the symptoms, splints, etc., are removed and the patient set up in a chair. Many aged patients are saved by this treatment.

If we accept the old adage that "an ounce of prevention is worth a pound of cure," would not our patient, provided he survived, have been in better physical condition if he had had no congestion? Also, would he not have had a better promise of a leg with good function had the apparatus been undisturbed?

Dr. Whitman has answered these questions in many articles when he has advocated elevation of the head of the bed and frequent change of position. If I have made my point clear and it is accepted, may we go a step farther and compare the physical condition of the habitué of a Turkish bath with the man who frequents a gymnasium. The physical condition of the patient who is massaged and rolled about in bed as compared with the one who pushes a wheel chair about is somewhat analogous.

Dr. Whitman devised his method of abduction in extension for the treatment of hip fractures in children, which he adapted to aged patients. I have devised a modification of the method, flexion and the sitting position, for the aged and adapted it to any

age. Statistics of his results with patients past middle age would be of value in comparing the two methods.

Dr. Whitman has always been a champion of "efficient treatment" of hip fractures occurring at any age. His teaching has done much to dispel the old, firmly fixed practice of watchless waiting in the treatment of this injury in the aged.

While I cannot agree with some of the details of his method, the underlying principle of affording favorable opportunity to repair of the injury, I can subscribe to heartily.

G. A. MOORE.

LEGISLATIVE HEARINGS.

Several hearings on matters of interest to the medical profession have been held by the Legislative Committee on Public Health.

House 75. For the appointment of a special commission to investigate the feasibility of establishing a hospital for the treatment of surgical or non-pulmonary tuberculosis. The testimony submitted indicated very definitely the need of such an institution, but a preliminary study of this question having been made in 1915 and 1918, it seemed to be the consensus of opinion of those present that the State Department of Public Health could not take this work up at less expense and with the prospect of greater efficiency than would be possible under a new commission.

Senate 115. Relating to the registration of X-ray Technicians. They should be registered because the public may be better served. Some are practising medicine.

House 745. Relating to physical examination of hotel and restaurant employees. The testimony seemed to show that the expense would be out of proportion to possible benefits.

House 746. Relating to inspection of hotels, restaurants, storerooms and larders. The testimony indicated that Boards of Health have adequate authority at the present time.

House 747. Relating to the prevention of bubonic plague. The reasons for this legislation were presented by the Boston Board of Health and are repetitions of the arguments advanced last year. The Chairman of the Committee explained that the Committee reported favorably on a similar proposition but the Supervisor of Administration and the Legislature refused to endorse the recommendations of the Committee and nothing substantial was done. It was shown that bubonic plague is a definite menace in that it is generally prevalent throughout the world, and if we waited for it to be exhibited here through human attack it would be too late to effectively control it, for the human evidence does not usually appear until several months after the infected rats gain a foothold, for the fleas do not infect human beings until the rat dies or they become accidentally detached.

Mr. Pincers, a sanitary engineer in the U. S. Public Health Service, explained the details of the work and stated that if the State sees fit to enter upon this work the Federal Government will carry on all technical studies and furnish expert supervision.

Since the plague is now existing along the Gulf Coast and the South American countries, it may, according to precedent, be expected to invade Northern seaports. The mortality is very high and the danger is imminent.

House bills 745 and 746, relating to physical examination of persons employed in hotels and restaurants, and inspection of the same, have been given leave to withdraw.

The bill of Edna Lawrence Spencer (Senate 259), for protection of mothers and children during the maternity period, has been referred to the Committee of Public Health and Social Welfare, sitting jointly.

RESOLUTIONS ON MATERNITY LEGISLATION.

The following resolutions were unanimously passed at the last meeting of the Middlesex East District Medical Society:

WHEREAS, so-called maternity legislation is pending before the next session of the Massachusetts Legislature, and

WHEREAS, much of the present consideration of maternity legislation has been due to the persistently widespread statements that maternal mortality has nearly doubled since 1901, and that therefore the practice of obstetrics is in an intolerable condition, and

WHEREAS, these statements have even been promulgated and fostered by medical journals, departments of public health, etc., and

WHEREAS, such Vital Statistics, although steadily improving in their accuracy, are still wholly unreliable for comparisons, and

WHEREAS, the Massachusetts Department of Public Health, although still reiterating that maternal mortality is increasing, is unable to furnish causes for such increase except "ignorance," "poverty," and "some unfavorable factor" apparently unknown, and

WHEREAS, we, the Middlesex East District Medical Society, know of no cause for an increase in maternal mortality, but from our own knowledge do know that there has been marked improvement in the care given mothers and babes during the past twenty years.

THEREFORE, BE IT RESOLVED, that we earnestly and respectfully urge that the Massachusetts Senate and House of Representatives and the Governor of this Commonwealth consider with the greatest caution all proposed maternity legislation based upon the above-mentioned statistics.

A. E. SMALL, Sec.

Middlesex East District Medical Society.
February 1, 1922.

RESEARCH CLUB OF THE HARVARD MEDICAL SCHOOL

At the meeting to be held in the Amphitheatre of Building A, on February 10th, at 12:30 o'clock, Dr. J. Aub will talk on "The Relation of the Adrenal Gland to Metabolism."

NOTICES.

STAFF CLINICAL MEETING, BOSTON CITY HOSPITAL.—Cheever Surgical Amphitheatre, Friday, February 10, 1922, at 7:45 o'clock, P.M. Topic: Recent Studies in the Physiology of the Internal Secretions. Speaker, Walter B. Cannon, M.D. The following men have been invited to open discussion: Otto Folin, M.D., Reid Hunt, M.D., William H. Robey, M.D., Edwin A. Locke, M.D., Frank H. Lahey, M.D. Open discussion. Physicians and medical students invited. Refreshments.

H. ARCHIBALD MISSEN, M.D.,

HALSEY B. LODER, M.D.,

Committee.

MASSACHUSETTS GENERAL HOSPITAL STAFF MEETING.—A clinical meeting of the Staff will be held in the Lower Out-Patient Amphitheatre on Monday, February 13th, at 8:15 P.M.

Program: (1) Recent Investigations in Epilepsy, Dr. Stanley Cobb and, possibly, Dr. Fritz Talbot; (2) The Parkinsonian Syndrome, Dr. Hugh Mella; (3) Differential Diagnosis between Gastric Cleer and Tabetic Crises by X-ray, Dr. J. B. Ayer and Dr. F. Fremont-Smith; (4) Pernicious Anemia: Initial Symptoms from Cord Tumor, Dr. Henry R. Viets and Dr. James Townsend.

Doctors, nurses and medical students invited.

F. A. WASHBURN, M.D., Director.

The Boston Medical and Surgical Journal

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The New England Surgical Society

INFECTIONS OF THE BILIARY PASSAGES.

By JOHN T. BOTTOMLEY, M.D., BOSTON.

It is not intended that this paper should offer anything new on the subject in question. It is hoped that it will set forth the gist of present-day opinion with regard to infection of the biliary tract and the influence of that opinion upon our present-day methods of treatment. Infection has always played an important part in the etiology of surgical disease; nevertheless, it is only in relatively recent years that we have arrived at a thorough, accurate, appreciative knowledge of its causative relation to and its method of action in many affections of such organs as the stomach, the appendix and the biliary apparatus, all deeply placed in the body and yet all more or less directly connected with the body-surface through channels lined with mucous membrane. In so far as the biliary apparatus is concerned, the patency of the fact that it is thus connected with the body-surface probably furnished the chief reason why we came at so late a day to a correct idea of the common path followed by infection on its journey to the gall-bladder and associated ducts. Some few years ago Naunyn, the internist, in his studies of biliary disease, emphasized the fact that the presence of jaundice

when there are no stones in the hepatic or common ducts, and its possible absence with even a good-sized stone in the common duct, demanded for its explanation some more constant factor than the mere presence or absence of a stone. This factor, he insisted, was infection of the ducts with the consequent swelling and edema of the mucous membrane. He believes that the pathological changes seen in the biliary tract are the result of its reaction to bacterial injury, and that gallstones are incident and not essential in the process. The non-calculous stage of biliary infection has not received the attention to which its importance entitles it and the calculous phase has had too much. In this country the work of Billings and John B. Murphy on focal infections, the infection of organs and portions of the body from remote foci, was a considerable step in advance and prepared the way for the remarkable studies of Rosenow who had ably demonstrated the elective localizing power of certain bacteria in so-called harmless chronic infections (tonsillitis, infected dental roots, sinusitis, etc.) and has shown the striking importance of such foci as sources of the hematogenous infection of distant organs, among others the gall-bladder.

Rosenow's¹ work is of basic importance and a consideration of even that portion of it which has to do with the gall-bladder is of great interest and value. If there is injected directly into the lumen of the gall-bladder streptococci already proven to have an affinity for the gall-bladder when injected intravenously, infection

of the organ does not follow. It has long been known that normal mucous membrane affords marked protection against the invasion of bacteria. Some other factor aside from trauma or an area of lowered resistance, both usually so necessary for local infection, must be adduced to explain the place of localization of bacteria after entrance into the blood stream, and that factor, Rosenow shows, is a quality inherent in some strains of bacteria themselves, a peculiar affinity for localizing and producing lesions in certain organs. Certain strains of streptococci tend to localize and produce lesions in organs corresponding to those affected in the person from whom they were isolated. For instance, eighty per cent. of forty-one animals injected with strains from cholecystitis developed lesions in the gall-bladder. It was shown experimentally that streptococci in infected tonsils and teeth may have elective localizing power, and Rosenow wisely calls attention to clinical facts corroborating the causal relationship between a focus of infection and disease in distant organs. We, ourselves, I think, can recall from our experience the increased incidence of acute appendicitis, acute renal infections and exacerbations of symptoms of duodenal ulcer in epidemics of acute throat infections. In further support of the causal relationship let Rosenow tell of a case seen by both the clinicians and the laboratory men at the Mayor Clinic: it affords a very striking commentary on his own ideas and for that reason is worthy of brief report. A patient complaining of distress after eating, repeated attacks of moderately severe pain in the epigastric region and to the right of it, recurring attacks of diarrhoea, and marked loss of weight—symptoms of chronic cholecystitis without stones—showed on general examination only slight tenderness in the right hypochondrium. Two devitalized, abscessed teeth were removed and a small collection of pus in the upper jaw was drained without perceptible effect on the patient. Six months later, the tonsils were removed and a return to health followed. The primary cultures from the tonsils were injected into four animals. One animal died suddenly and the others were chloroformed at the end of forty-eight hours. Autopsy showed lesions of the gall-bladder, pancreas and the acid-forming portion of the stomach in all four animals. The gall-bladder and the pancreas were hemorrhagic and edematous. Streptococci isolated from the fluid about the pancreas of one dog were injected into a dog and a pregnant cat. Marked lesions of the gall-bladder and the pancreas developed in both. The cat aborted and the foetus showed pancreatic hemorrhages. Cultures from the lesions in the pancreas of the foetus, in the pancreas and gall-bladder of the mother cat and of the pancreas and the gall-bladder of the dog, yielded the streptococcus injected. It seems to me that the deductions from this case are so

logical as to need no comment. In the light of our present knowledge, we must accept as true the conclusions of Rosenow.

Furthermore, it is interesting to the surgical clinician to note that Rosenow found a relatively high incidence (21%) of lesions in the gall-bladder following injection of strains of streptococci from gastric and duodenal ulcer and in the stomach and duodenum (29%) following the injection of gall-bladder strains; this finding suggests that the common association of these two lesions in man may also be due to embolic infections by bacteria having affinity for the structures involved. On the other hand, one is struck by noting that in seventeen strains from the appendix 70% of the animals developed appendicitis and in that series, while 11% showed gastric or duodenal lesions also, only 1% developed lesions of the gall-bladder.

It seems safe to assume, then, that the chief cause of infection of the biliary tract is the streptococcus and that it is borne thither by the blood current from a distant focus. The streptococcus, the staphylococcus, the typhoid bacillus, the bacillus of influenza and the colon bacillus have all been found in infected bile. It is Rosenow's belief, however, that though the elective localizing power of the colon bacillus has been occasionally demonstrated both in cholecystitis and appendicitis, it is usually a secondary though important invader in cholecystitis. The importance of the rôle played by the typhoid bacillus is so well known as to need only mention. Graham² of Toronto recovered the staphylococcus from the gall-bladders only of such patients as gave a clinical history of mucous colitis in varying degrees of severity, but he considers the lesion in the gall-bladder the primary one. Deaver³ and many others have preached the causal relationship of appendiceal inflammations to those of the gall-bladder, this infection probably taking place through the portal circulation. Furthermore, the passage of infectious agents from the bowel to the liver by way of the venous and lymphatic systems, and their elimination through the bile, has been advanced as an explanation of the frequent association of gall-bladder disease, duodenal ulcer and appendicitis (Kelling⁴).

Graham⁵ of St. Louis has noted the almost constant association of hepatitis with cholecystitis. There is an intimate lymphatic connection between the liver and the gall-bladder; the inflammatory process is often older in the former than in the latter and the path of infection may thus conceivably be from the liver to the gall-bladder. Judd,⁶ however, believes that such an occurrence, though possible, must be rare. The gall-bladder is in such intimate juxtaposition to the liver that the mere juxtaposition may explain the coexistence of inflammatory processes in both. We have all seen at

the operating table evidences of hepatitis (usually well localized, occasionally widespread and scattered), when we have been dealing with lesions of the gall-bladder. But we have also met with many instances where no gross lesion of the liver was present. It is well to remember, however, that a microscopic examination is frequently necessary to demonstrate the hepatitis. In a corresponding way, the gall-bladder itself may be entirely innocent in appearance and normal to the eye, and even may be sterile to surface or bile culture and yet show in sections, under the microscope, unmistakable round-cell infiltration, the sure sign of a preceding inflammatory process. I have often wondered what a section of the wall of the common or hepatic ducts would show under the microscope in cases in which they grossly appear within the limits of normality. In other words, are these changes due to inflammation limited to the gall-bladder wall, or are the duct walls also implicated in the process? The true answer to this question might influence our ideas as to treatment.

Infection, then, may reach the gall-bladder along various paths; through the systemic circulation, the portal circulation, the lymphatic system, through juxtaposition and by way of the common duct.

The possibility of infection reaching the gall-bladder by way of the common duct is doubted by many, and my own opinion is that, while such an occurrence is possible, it is by no means common. We have all seen cases of acute, almost fulminant cholecystitis with the tense, reddish-purple, distended, edematous gall-bladder and a common duct that seems to be entirely normal. However, the conditions are not always thus. We know the increased incidence of acute cholecystitis in the corn, shore-dinner season; we are all acquainted with the acute gastroenteritis that usually precedes or accompanies it. If the sphincter at the papilla of Vater functions under normal condition, I think infection of the gall-bladder through the duct is very uncommon; if, however, it has to function under such abnormal conditions as may be present with acute gastro-duodenitis, duodenal ulcer, etc., then the mechanism of the papilla may well be disturbed by the irritation, the bile, often in a condition of stasis in the duct, may become infected and this infection may thus reach the gall-bladder itself.

Once infection has reached the biliary tract, how does it act? It may work in such a way as to produce that acute inflammation of the gall-bladder with which we are all so familiar that no time will be given to its consideration in this paper. The lesions are usually at least partially destructive in character and occasionally lead to perforation. Though a case now and then may produce so acute a toxemia as to be lethal, the primary acute attack, even

though it may be very severe, is only rarely fatal, and many cases recover without any surgical interference whatever. The great danger, of course, lies in the fact that it prepares the ground for future trouble—the recurrent acute attack of chronic inflammatory disease of the gall-bladder and ducts with its long line of sequences, near and remote.

Nor is any pretension made to offer here an adequate discussion of the possible results of chronic infection of the gall-bladder. A brief résumé will be offered and the sequences will be discussed in the order they come to the reader's mind and not, perhaps, in the order of their importance.

1. The wall of the gall-bladder itself is damaged and may become grossly thickened and greatly crippled in its function. All gradations of chronic infection may be seen, ranging from the impalpable process, imperceptible to the naked eye, to the stage marked by minute, papillomatous outgrowths from the mucous membrane, to that indicated by the so-called "strawberry" mucous membrane, even to the last stage—a contracted, functionally useless but still dangerous remnant of an organ. The neighboring lymphatic vessels are thickened and engorged and the glands infiltrated and enlarged.

2. Moreover, the chronically inflamed gall-bladder must be regarded as a source of toxic absorption. Degenerative changes in other organs (the myocardium for example), arthritis, hepatitis with disturbances of the liver function, anaemia, and a general condition of lowered resistance, are possible results. The derangement of liver function may assume new importance through the recent work of Crile which he himself says is at present suggestive rather than conclusive. The infection, the diminished nutrition, the loss of water equilibrium due to the nausea of jaundice, the lowered blood pressure and the back pressure of the bile, all predispose to "liver shock" with its deleterious effects on the brain cells—a possible factor in raising the mortality of gall-bladder surgery under the usual conditions of anaesthesia. The opinion that an infected gall-bladder may be one of the causes of duodenal ulcer is not without its supporters. Graham, already quoted, thinks that there is some ground for regarding it as a forerunner of mucous colitis also. To this load, already great, must be added jaundice, that undesirable expression of the presence of bile in the blood stream.

3. Pancreatitis. This sequence of chronic biliary infection is only mentioned, since it has been adequately dealt with by Dr. D. F. Jones at this session. An acute pancreatitis is very evident to palpation at operation; equally so would be the advanced case of chronic pancreatitis, were it not for the fact that it is often impossible to distinguish it from malignancy.

It is in the beginning and early cases of chronic pancreatitis that difficulty arises. The pancreas normally is a firm organ; perhaps one would not call it hard. When the firmness exceeds normal, chronic pancreatitis has begun. Surgeons differ in the sensitiveness of their palpation as well as in their ideas of the normal degree of firmness; hence arises the variance in the report of percentages of chronic pancreatitis in biliary infection. Each man is more or less a law unto himself.

4. Cholelithiasis. Chronic cholecystitis may exist with or without stones. Stones may be formed in sterile bile, but it is certain that the great majority of gall-stones are the result of infection. I believe that most of them are formed in the gall-bladder but, unwelcome tenants as they are even there, unlike the usual unwelcome tenant, they are prone to move. They pass on into the ducts and are always, whether in the bladder or in the ducts, potential if not actual sources of danger and harm. They are free to cause ulceration and stricture and obstruction anywhere in the biliary passages, with all the troubles that these portend, or to perforate into the intestinal tract with a possible similar effect there. They furnish the chronic local irritation that may give rise to future cancer. It is said that in 95 per cent. of primary cancer of the gall-bladder, stones are present. They increase the severity of any recrudescence of inflammation and they are exciters of unpleasant reflex phenomena. They, too, may lead to jaundice.

5. Reflex sequences. Of all the viscera, the stomach is the one that participates most, at least symptomatically, in the pathology of the biliary apparatus. Pylorospasm, with its attendant disturbances of gastric motility, and certain changes in the chemistry of the gastric secretion are common accompaniments of an infected gall-bladder either with or without stones.

6. The formation of adhesions. It is certain, of course, that cholecystitis, either in the acute or in the chronic form, tends to the formation of adhesions which in some instances are extensive. These may, without doubt, at times give rise to some discomfort, but I am inclined to agree with Deaver that, in the absence of renewed infection or of mechanical obstruction (which, I believe, is very rare in this field), they are usually harmless. As in other localities, so in the biliary region adhesions are blamed for many things of which they are really innocent. Of themselves, they seldom cause severe symptoms. Their possibilities for doing harm must, however, be borne in mind.

Symptoms. Before such a gathering as this it is not necessary to discuss at length symptoms of either acute or chronic biliary infection. As far as the acute form is concerned, the symptoms are classic and known to you all. In passing, let me call attention to a type of

acute biliary infection spoken of by the late John B. Murphy.⁷ It is characterized mainly by what he terms the "temperature angle of cholangic infection," which he differentiates from the usual temperature curve of such infections. It is due to an inflammation of the gall-bladder and may exist without jaundice, without pain, without a history of colic and without the usual easily elicited tenderness in the right hypochondrium; recurrent attacks of chills and fever—the old-fashioned "ague"—may be practically the only symptom. A chill occurs, the temperature rises very sharply to 105°–106°, remains high for three to four days and then drops to a normal range, where it continues for from ten days to two weeks, when another sudden exacerbation of temperature with a chill ensues. According to Dr. Murphy, these patients during the acute stage are always sensitive to perpendicular percussion and to deep pressure with the fingers hooked beneath the right costal border; that fact, together with the striking temperature angle, clinches the diagnosis. I have never recognized such a case. I mention Dr. Murphy's description of the typical case in an educational way, because he was so very able a clinician and because, in the event of chills and fever occurring without evident cause, possible infection of the gall-bladder may be brought to your minds.

The symptoms of chronic cholecystitis are usually those which go to make up the symptom-complex commonly known to the laity as "dyspepsia" or "indigestion." They are as varied, of as many colors, apparently as indefinite and as wandering as the patients who complain of them. But a carefully taken clinical history, a painstaking one elicited not at one but at repeated sittings, may lead us to the correct diagnosis. The real incidence and sequence of symptoms is of great importance. A recent article by R. R. Graham² has taken up this subject so thoroughly that it would be presumption for me to do more than to recommend it to you for your consideration. It provides a first-rate argument for the importance of history-taking in the training of our house pupils, who, outside the hospital walls, may find themselves without laboratories and without instruments of precision, but who need never be without observing eyes, skillful fingers, inquisitive tongues, and logical, orderly minds.

Treatment. The best, the most satisfactory treatment is preventive; by the term "preventive treatment" here I mean the application of the proper therapeutic procedure before the local pathological changes incident to biliary infection have reached an advanced stage, before stones have formed, if possible, before the gall-bladder itself is infiltrated with the inflammatory exudate. This, I know, is visionary and quite impossible with our present knowledge, but nevertheless, it is ideal, and the ideal is what we should try to attain. I fear, however,

that as in the past most of our work in the way of treatment will have to do with cases in which the pathological process is more or less advanced. Even in that event, we can still aim at preventing future trouble by applying the proper procedure to the pathology presented and by eradicating the original focus of infection. The latter, of course, will not always be possible, since there are certainly hidden infective foci which we cannot hope to uncover.

With the knowledge we have at hand today, the only logical treatment of biliary infections is that afforded by surgery. It may not be ideal, it may not always be entirely satisfactory, but it is surely the best that the present can offer. It is possible that in time the physiologic drainage of the gall-bladder, which has been proposed by Vincent Lyon of Philadelphia, will develop outside the position which it holds today—a possible means of early diagnosis in the hands of an expert user, a possible agent of relief in so-called catarrhal jaundice. But it cannot take the place of a sound surgery in the treatment of gall-bladder infections; it cannot remove an exudate from a thickened, infiltrated bladder-wall nor prevent the pernicious effects of such an infection. As far as the treatment of real biliary infection is concerned, it occupies quite the same position as the so-called medical incision in the treatment of spreading cellulitis in the superficial parts; it is elegant but ineffective. This is the age of "something new"; the times are prone to ascribe to novelties wonderful powers which are seldom realized in fact. I admit that it is through "something new" that progress is made, but nevertheless every new procedure that is proposed should be measured by common-sense standards, and only when the measurement is convincing should the forward step be taken.

The question of the proper surgical procedure to be applied to the various pathological conditions caused by infection of the biliary tract has not yet been definitely settled in its entirety. Numerous articles on cholecystectomy *versus* cholecystostomy, on the technic of drainage of the common duct, on the problem as to whether the gall-bladder should be removed from below upward or from above downward are found in the professional journals. Many of the problems must be solved by the individual operator for himself; he must consider his own ability and must weigh the systemic, the anatomical and the pathological conditions offered by the individual case as he meets it. He must read and ponder and shape his course along ways he feels he is best prepared to follow.

Though certain pathological conditions and certain individual circumstances may make cholecystostomy advisable at times, yet the weight of the best surgical opinion of today is on the side of cholecystectomy as the routine measure. The end-result—and that is the best measure of the

worth of an operative procedure—following cholecystectomy seems to be better. Unsatisfactory results sometimes follow either procedure; those after cholecystectomy are almost always due to operative trauma or to operative technical errors; those following cholecystostomy, to pathological conditions which should have been eradicated. Yet, cholecystectomy is by no means a simple, danger-free operation; it is far from fool-proof. I always approach it very respectfully and some of my most serious operative sins in this field have been committed in cases where I had made a very clear demonstration of anatomical conditions and had thought I had plain sailing. Care, care, and still more care, is our only safeguard.

Of what should be done in the presence of pancreatitis, Dr. Jones has spoken.

On the question of the technic of drainage of the common duct much might be said. The natural drainage is through the papilla into the duodenum. When that way can safely be used, use it, because, as with all other mucus-lined channels, incision and operative trauma applied to the common duct may be followed by stricture. If you are sure that the stones have been removed and that the path for the bile into the intestine is unimpeded, suture carefully the operative opening in the duct and place a small drain in the pouch below it; do not drain down *to* it or you sin against the code of good surgery.

For the same reason (possible stricture following operative opening) I believe the method of draining the common duct by passing a catheter through the stump of the cystic duct, should have much consideration. I am sure, however, that the introduction of such a catheter is sometimes a matter of difficulty.

The surgery of biliary infections is a field that should be held in much respect. The occasional operator should enter it only in cases of emergency. Even the most experienced surgeon may have his skill and judgment taxed to the utmost, because in no other abdominal field may the pathological processes be more widespread and varied and the anatomical relations more important and involved.

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Announcement of meetings to be held on and after next Thursday should reach the desk of the Editor of the JOURNAL not later than next Saturday before noon. The printers do not work Saturday afternoon and the material is locked up in the forms on Monday, and goes to press Tuesday morning. The wrapping and mailing begins Wednesday. Please forward copy early.

THE VALUE OF MEDICAL BILIARY DRAINAGE FOR DIAGNOSIS AND TREATMENT OF DISEASES OF THE GALL-BLADDER AND BILE DUCTS.

By FRANKLIN W. WHITE, M.D., BOSTON.

*Instructor in Medicine, Harvard University.
Visiting Physician, Boston City Hospital.*

THE Meltzer-Lyon method of drainage of the bile passages by means of the duodenal tube and douching the duodenum with a magnesium sulphate solution, has attracted much attention and is being tried at the present time in many medical and surgical clinics throughout the country, and within a year or two we shall have a large amount of data which will definitely settle the value of the method in diagnosis and treatment of diseases of the liver and biliary passages. The method has aroused much interest and some enthusiasm over the prospect of better diagnosis and treatment, and has met with much skepticism as to the possibility of telling where the bile comes from or of draining the gall-bladder in this way, or of culturing its bacteria. In introducing a new method, it is natural to stress its good points and to say less about its difficulties and limitations. This tone is easily heard in the earlier papers.

My own experience with the method covers nearly a year and about 100 cases, and I prefer, at this time, to give my general impressions of the method rather than an elaborate, statistical study. There are many phases of the subject, physiological, chemical, bacteriological and clinical, which need further study, and I realize, in looking backward, that data in the earlier cases were incomplete.

The appeal of the method is very strong, both to doctor and patient. The doctor has the contents of the bile passages in his hands after a simple procedure and can examine it in any way he chooses, chemically or for cells and bacteria. There is also the appeal of early diagnosis and early preventive treatment before real damage has been done to the liver and bile passages. The "bilious" patient sees his bile taken out of him and feels that he is cleaned out and something nasty is being taken away.

There is much that is easy and simple about this method. It is easy to get patients to submit to it. The hope of a better diagnosis and, perhaps, of a medical cure, is attractive.

It is usually easy to get the tube in. The statistics in one hundred consecutive ambulatory cases examined at my office, in which the position of the tip of the tube was verified by the fluoroscope, showed that 80 were well placed in the duodenum in 20 to 30 minutes; 15 required from 30 minutes to one hour; one, two hours, and four failed to pass (adhesions, atonic stomach, vomiting of tube, etc.). These figures represent the milder or moderate grade

of ambulatory case. The per cent. of delayed passage and of failures to intube will be higher in the sicker or ward patients, in those with extensive adhesions or with deep jaundice and nausea, so that the failures to pass the tube to the duodenum may reach 10 per cent., or even more.

It is easy to get the bile out; anyone can do it,—a nurse or attendant, or even the patient himself, after a few lessons.

On the other hand, there is much that is *not* so easy about the method. It is not easy to tell just where the bile comes from or why it flows so freely, whether as a result of relaxing the common duct sphincter, or of stimulation of the liver, or both. It is not easy, at present, to definitely explain the color changes in the bile, whether due to emptying the gall-bladder of darker bile or to a change in liver secretion after magnesium sulphate. It is not easy to decide about the cells one sees, whether they come from inside the bile passages or from outside (stomach, bowel, etc.). It is not easy to interpret the cultures and to decide whether they are important causative bacteria or extraneous contamination. It is not easy to sum up the diagnostic value of the method, especially if one has a large series of cases with few operations. We will discuss these things separately, as far as time permits.

Physiology.

Certain facts have been observed after local douching of the duodenum with $MgSO_4$ solutions and aspiration of the bile through a duodenal tube, which have been interpreted in various ways by different men. After this use of magnesium sulphate in normal, and many sick, persons, a free flow of bile occurs, usually light yellow at first, later changing to darker or brownish yellow, and later still, to light yellow again. Lyon's theory is that the first pale yellow, or "A," bile comes from the common duct, that the second darker, more viscid "B" bile comes wholly or largely from the gall-bladder, and the third, clear yellow, thinner "C" bile is freshly secreted liver bile, and that he is able, in this way, to obtain the bile *separately* from common duct, gall-bladder and liver, and establish a refined diagnosis of the different sections of the biliary system.

The method of Lyon is based on the facts that there is a loose sort of sphincter discovered by Oddi at the lower end of the common bile duct at the papilla of Vater, which has a definite sphincteric action, and on the discovery by Meltzer that magnesium sulphate, applied locally, relaxes this sphincter and permits a flow of bile into the duodenum. This is very important, as by means of this relaxation we are able to drain the bile passages. Simultaneous, forcible contraction of the gall-bladder at the same time after using magnesium sulphate has not been proved, I believe, by any labor-

tory experiment. Doyon has found a double, or crossed innervation to the gall-bladder and ducts, so that stimulation of the *central* end of the vagus (or of the *peripheral* end of the splanchnic nerves) causes simultaneously a relaxation of Oddi's sphincter and a contraction of the gall-bladder. This emptying of the gall-bladder is covered by Meltzer's "law of contrary innervation." This "law" may apply *after the use of magnesium sulphate* in this field and probably does, but we have no definite proof thus far. The gall-bladder is a rather inactive, limp affair, with little muscle fibre, and we are forcing the comparison a little when we compare it to the muscular urinary bladder. Even if the normal gall-bladder does contract after stimulation with magnesium sulphate, the thickened, rigid, fibrous, adherent, pathological ones do not.

On the other hand, *the bile does flow, it flows freely, it is an every-day experience, it is absolutely unquestioned.*

The emptying of the bile passages when the sphincter is relaxed is probably due to siphonage or running out of the bile, and perhaps more or less to contraction of the gall-bladder.

It has been found that with the gall-bladder exposed during anesthesia and then stimulated by magnesium sulphate, the gall-bladder did not visibly contract; but these experiments may be vitiated by the effect of the anesthetic on the muscle fibres of the gall-bladder. On the other hand, Sachs has several times at operation seen the distended gall-bladder gradually collapse and empty through the duodenal tube after the use of magnesium sulphate. He compares this to the collapse of a balloon when the air is let out, no muscular contraction was observed.

The bile flow and color change after the use of magnesium sulphate is explained by Einhorn and Dunn and Connell in quite another way.

Einhorn does not believe that the darker bile is gall-bladder bile necessarily, but that it is due to the effect of the $MgSO_4$ as a liver stimulant, increasing the flow of bile directly from the liver and driving it rapidly and directly into the duodenum. He finds that the stronger the $MgSO_4$ used, the darker the bile and the higher its specific gravity. He finds that other salts, such as sodium sulphate and sodium bicarbonate, with no relaxing action on the duct sphincter, give a similar color reaction to $MgSO_4$, and that a group of patients without gall-bladders (cholecystectomy) give a similar color reaction; that all substances producing dark bile do it whether the gall-bladder is present or not. In short, he does not believe that the color change is due to the emptying of gall-bladder contents.

Dunn and Connell have made some interesting experiments on bile flow after introducing $MgSO_4$ into the duodenum in a patient with-

out gall-bladder or common duct, and in whom the hepatic duct had been anastomosed to the duodenum and who had also a duodenal fistula. Here was no sphincter of Oddi to be relaxed and no gall-bladder to be emptied. The patient's digestion was good and she felt well during the entire period of the studies. The typical "A," "B," "C" sequence of colored biles was obtained. The same result was obtained when $MgSO_4$ was injected into the duodenum, 32 cm. below the second part of the duodenum and also when the $MgSO_4$ was taken by mouth. Quantitative studies of the bile showed that the color changes were due to a variation in the amount of bile pigments present. They conclude that the color changes in the bile are due to a reaction of the liver to the presence of magnesium in the portal blood after absorption from the bowel.

To sum up, we may say that all observers agree that there is a free flow of bile, a free "drainage" of the unobstructed biliary system after the use of $MgSO_4$ with the appearance of a more concentrated, darker bile containing more bile pigments, although they explain this result in different ways, one by relaxing the common duct sphincter and contracting the gall-bladder, and the other by stimulating an increased flow of bile from the liver. *The practical point is that it is possible to empty the bile passages more or less completely at will by the use of $MgSO_4$, and that this material is well worthy of study, however it is obtained.*

Lyon's theory that bile from different parts of the biliary tract, common duct, gall-bladder and liver, can be judged largely by the gross color, needs further proof before it can be accepted without reservation as a method of localizing disease in the biliary passages.

How complete is the emptying of the gall-bladder in this method? This is, of course, important in treatment. Unfortunately, we do not know. My impression is that it varies a great deal in different cases even without gross obstruction, and in the same case at different times. This may lessen the value of the method both for diagnosis and treatment, or require repeated stimulation and prolonged drainage, as emphasized by Smithies.

General Technique of the Method.

This has already been much described by Lyon, Smithies, Simon, Friedenwald, Sachs, and others, but it may be well to run over it briefly, as it is new to many.

The patient is examined fasting (and for this reason usually in the morning). This is very important, as it takes little mixed food to block the small tube and delay the washing out of the stomach. The teeth are well brushed and the mouth thoroughly rinsed with liquor antisepticus. The patient sits down and a sterile duodenal tube with Rehfuß or Lyon tip, is passed into the stomach and the fasting

residue is aspirated with a syringe and examined as desired (HCl, blood, cells, bacteria). The stomach is then thoroughly washed with a weak zinc chloride formalin solution,* running in about 300 c.c. at a time, and syphoning it out again until the washings are absolutely clear (this takes about twenty minutes). The patient now lies on a couch, with head and shoulder, slightly raised, turned about half-way toward the right side, and swallows the tube *slowly* to the 75 cm. mark, taking about twenty minutes to do this. Sometimes, a few ounces of water are sipped to help the progress of the tube. When the tube is in the duodenum (see below) the duodenal contents are aspirated with a syringe and then the duodenum is douched with a 1/3 saturated solution of magnesium sulphate in water (30 c.c. of saturated solution of $MgSO_4$ in water, mixed with 60 c.c. of water). The plunger of the syringe is removed and the $MgSO_4$ solution is poured into the barrel of the syringe attached to the tube. The tube is then attached to a six-ounce aspirating bottle with rubber cork and two openings, one connected with a small rubber aspirating bulb. Gentle aspiration is begun at once and the bile soon starts to flow and continues with little or no help from the aspirator. Lyon separates three types of bile during this flow, chiefly by color and consistency. In normal cases, the first, or "A," bile is light, golden yellow and rather thin; the second, or "B" bile, is darker yellow and more ropy; the third, or "C" bile, is light yellow and thin. Lyon considers that A represents bile from the common duct, B from the gall-bladder, and C from the liver and hepatic ducts.

The biles are collected in separate sterile bottles for examination. The color must be noted when fresh, as most biles soon darken on standing. The cells also must be examined at once as they are readily digested by ferments present.

The drainage usually takes from 20 to 30 minutes and about 15 or 20 c.c. of A and 50 or 60 c.c. of B and C bile obtained. When this is finished, the duodenum is douched with 300 c.c. of normal salt or Ringer's solution, and the tube withdrawn. The bowels are usually moved more or less freely by the $MgSO_4$ solution, which is considered desirable, as it may carry infected bile out of the lower bowel. A light lunch of malted milk or broth and crackers is given after the drainage, to avoid weakness.

Several of the steps in the process will be considered separately.

The Passage of the Duodenal Tube.

The early methods of introducing the tube were slow, taking one to two hours, or often

overnight. With the rapidly growing use of the tube, a rapid method has been developed which will place the tube in the duodenum in 20 to 30 minutes in about 80 per cent. of cases where no pyloric stenosis or extensive deforming adhesions are present. I have verified these figures by the use of the fluoroscope in my own cases. A fairly heavy tip, such as the Rehfuß or Lyon tip, carries the tube down the esophagus through the cardia to a low point on the greater curvature, with the patient in the erect position, swallowing about 55 cm. of the tube. After the stomach is washed out, the tip is kept in the antrum near the pylorus in a simple manner, by gravity. The patient lies on a couch with the head and shoulders slightly elevated. In this position there is little tendency for the tip to go back up the lesser curvature. The patient remains in a right oblique position (turned half-way toward the right side). This turns the tip toward the right and toward the pylorus.

Then the tube is swallowed, *slowly*, 15 to 20 cm. more, taking 15 to 20 minutes. The tip is moved forward rather slowly by peristalsis through the pylorus into the duodenum, and if the tube is fed in fast, the upper part travels faster than the tip and loops form in the stomach, which often cause delay. It is worse than useless to swallow the tube rapidly, or keep feeding the upper part of the tube in, unless the tip has gone forward through the pylorus. We need never put the tube in more than 75 to 80 cm.

The type of stomach does not matter much. It is somewhat surprising that the fairly low stomachs are not a real source of delay. Spasm of the pylorus is not important, the slight gagging produced by the tube usually relaxes spasm. We have never used atropin. It is important to know when the tip has passed into the duodenum and when drainage can be begun. This is rapidly and accurately done by the fluoroscope, but if the x-ray is not available, a fairly safe estimate may be made in other ways: (1) Inject an ounce or two of air through the tube with a syringe and listen over the epigastrium with the stethoscope. If the tip is in the stomach, we have a low-pitched, rumbling sound largely to the left of the median line. If the tip is in the duodenum, we have a higher pitched, hissing sound largely to the right of the median line, followed at once by the squirting sounds of peristalsis in the small gut; (2) if the patient drinks a few ounces of water and the tip is in the stomach, it is easily and promptly aspirated out. If in the duodenum, it is hard to recover.

For the most accurate diagnostic work, especially if absence of bile is to be used as an important diagnostic point, showing obstruction of the common duct, the x-ray should be used to be sure the tip is in the duodenum and the drainage properly carried out.

*The stock solution is: formalin, 1/2 grain; zinc chloride, 2 grains; boric acid, 10 grains; water, 1000 c. c. We use 25 c. c. in 250 c. c. water for lavage.

The Color Change. The Segregation of the Bile.

The average normal sequence of "A," "B" and "C" bile has already been noted and the cause of the color change has already been discussed. In pathological cases this may differ in various ways. The "B" bile may be much darker and more turbid than normal, or of different greens and blues, or even bloody, or there may be no color change to a darker or "B" bile, an absence of "B" bile, or there may be an *entire absence* of *all bile*, even with the tube in the duodenum and stimulation properly carried out.

This segregation, or separation, of the three biles is very far from absolute. It depends largely on color. Sometimes the color change is sharp and clear, quite often it is slight and gradual and segregation is guesswork. I read that "duct bile over 15 c.c. suggests duct stasis," etc. I do not believe this is a matter for measurement in cubic centimetres. There is a tendency to say, "This is duct bile, this is gall-bladder bile, this is liver bile." As a matter of fact, we have a series of usually open passages all connecting,—the stomach, duodenum, common duct, gall-bladder, liver ducts, etc.,—and each bile is usually a mixture. Probably "A" is a mixture of duct, gall-bladder and liver bile, with duct bile predominating, and "B" and "C" similar mixtures with gall-bladder bile and liver bile, respectively, predominating. The whole matter of color change and bile segregation needs clearing up. More experimental work on normal animals or men is needed before we can depend upon it to accurately *localize* disease in one specific part of the biliary tract.

The color changes in the same patient are not always constant at different drainages. We naturally expect some variation, but the difference may be very striking and capable of various interpretations. It is obvious to me that the gall-bladder, or bile tract, may be very differently drained in the same patient at different times. Absence of any color change, absence of dark, or "B," bile seems important. In the more serious cases, it was commonly found with cystic duct obstruction. This has been several times verified at operation, and seems a valuable point. I have also seen an absence of "B" bile frequently, in mild cases where it was impossible to believe that the duct was closed. This sign must be taken with the symptoms and other physical signs, to be properly interpreted, and it is very desirable to repeat the drainage several times on the same patient if it is to be used as an important diagnostic point.

If we are to depend on the absence of "B" bile, or of all bile, in diagnosis, we must be sure that the tip of the tube is actually in the

duodenum. This can be best proved by the x-ray.

The Examination of the Cells.

The examination of the cells in the bile sediment is important and has also its difficulties. They are best found by picking up the shreds and flakes in a pipette without centrifugalizing and placing them on the slide for microscopic examination. It is important to wash the mouth and stomach very clean so that cells from the bile passages may not be overlaid and mixed with leucocytes and epithelium from catarrh of the nasopharynx, stomach, etc. This is often easy, and sometimes very hard. Spurts of gastric contents are often forced into the duodenum before the drainage is finished, bringing with them leucocytes and epithelium from above to mix with the bile sediment, and also causing a fine, cloudy acid precipitate of bile salts. We usually see many extraneous (non-biliary) cells in our slides and sometimes unfortunately the result is like looking for a renal sediment in a case of leucorrhea.

Some experience and skill are needed just as for a urine sediment. Deep bile staining of the cells is usually seen in the true biliary sediments, leucocytes, cuboidal duodenal cells and columnar epithelium from the ducts and gall-bladder.

In normal cases, we may have extraneous cells, few or many, and a scanty biliary sediment, a few leucocytes and round or columnar cells, a few fat needles or fat drops, granular bile salts, etc.

In pathological cases there may be abundant deeply bile stained pus cells and desquamated epithelium, columnar and round, mucus, rarely blood cells.

Crystals and amorphous forms of cholesterol and bile salts are always present in some degree. Occasionally they may be very abundant, suggesting the possibility of stone formation. Rarely, there may be a fine, gritty sediment of bile salts. This occurred twice in this series and a diagnosis of probable gallstones was made which was confirmed at operation.

Cultures.

I speak of this subject with mixed feelings. It seems impossible to sterilize the upper digestive tract in any surgical sense and, on account of skepticism, the earlier one-half of our cases were not cultured. On the other hand, Cushing, McNeal and Chace, and others, have shown that the normal duodenum of a fasting patient is almost free from living bacteria, and frequent sterile cultures in chronic cases have shown that contaminations can be often ruled out by the simple measures already described (cleaning the mouth thoroughly,

washing the stomach, sterilizing the tube, etc.). The bacteria most frequently found were in this order: the colon bacillus, staphylococcus aureus and streptococci. About one-fifth of the cultures were sterile, a few showed merely contaminations such as *B. Proteus* and *Subtilis*, or *Staphylococcus Albus*. There was some real difficulty in deciding whether the bacteria found were causal or accidental, and on that account we have had little experience with vaccines.

Sometimes the cultures were of great value, showing an abundant, almost pure culture of some pathogenic organism, streptococcus hemolyticus, or staphylococcus aureus, which matched exactly with organism found in the tonsil, tooth root abscess or sinus.

More positive cultures were found in acute or subacute cholecystitis, and more sterile cultures found in mild chronic cholecystitis and gallstone cases. That is what might be expected from previous cultures on gall-bladders opened at operation. Repeated cultures from the bile drainages of the same patient have proved fairly constant in the well-marked cases, and variable in some others.

The bacteria found in the bile drainage cultures have checked up fairly closely with cultures from the excised gall-bladder, though less striking than in the interesting and larger series of operated cases reported by A. C. Whipple in May, 1921, in the *Annals of Surgery*.

Diagnosis.

In general, we may say that positive evidence is more valuable than negative and always means disease. By positive evidence, we mean clear signs, such as marked color changes, dark, turbid bile, abundance of deeply bile-stained pus cells, and desquamated epithelium, abundant pure cultures of pathogenic bacteria, a sediment gritty with crystals or such signs as complete absence of bile, or constant, complete absence of the color change, absence of "B" bile, where the drainage is properly carried out and we know that the tube is in the duodenum.

On the other hand, faint or negative evidence does not always mean a normal condition. The diseased area may be blocked off by obstruction, as in gallstone cases, and other obstructions of the cystic duct, and all the drainage come from the comparatively healthy part of the bile passages.

Many chronic cases give sterile cultures.

The diagnosis is easy where the signs are marked, such as dark, turbid bile, pus, abnormal epithelium, crystals, abundant bacteria, etc. The diagnosis is not easy and certain in some mild or early or borderline cases in which the method has been emphasized for early diagnosis and early preventive treatment.

There is always the difficulty in judging a new diagnostic method by a long series of

"medical" cases in which the diagnosis is only checked in a small portion by operation. We have many of the milder and subacute cases with a clinical diagnosis backed up by the bile examination, and medical treatment with relief or cure and no absolutely proved diagnosis, as we have in a surgical series. Fifteen of our cases were operated and the diagnosis made by clinical symptoms and signs, and by means of bile drainage, was correct, as a rule.

In ten *Normal Persons* the bile drainage proceeded in a normal way. There was considerable variation in the color change of the "B" bile. We never found abnormal cells, mucus, crystals or bacteria.

Catarrhal jaundice and cholecystitis cases proved the best group for diagnosis, especially the moderate grade cases, without much obstruction. In 38 cases diagnosed cholecystitis or cholangitis (including many mild and moderate grade cases without operative check on the diagnosis), positive evidence by bile drainage was obtained in 32. In 18 doubtful or very doubtful cases, 14 showed a normal bile drainage. Operative confirmation of both positive and negative diagnoses was satisfactory. In the doubtful cholecystitis cases, a normal bile drainage seemed a valuable link in the chain of negative evidence. Several suspicious cholecystitis cases giving a normal drainage, showed a normal gall-bladder at operation.

If there was serious duct obstruction, especially of the cystic duct as in acute empyema of the gall-bladder and some chronic fibrous cases, the bile drainage test showed little. No bile came from the pathologic area and practically the only sign was absence of "B," or darker, bile. If some slight color change was noted, the drainage was not distinctive, and fell approximately in the normal class. This same result was found in the stone cases about to be described. In one case of cholecystitis with much obstruction, only 6 c.c. of bile was obtained, but this was so pathological that a correct diagnosis was made.

The Gallstone Cases were much less satisfactory for diagnosis, as a rule, unless there was active cholecystitis or the ducts were not obstructed. Of twelve gallstone cases, eight, or two-thirds, of the cases gave a normal or approximately normal drainage. The only suspicious feature was the absence, or probable absence, of darker or "B" bile. This point was especially impressed upon us in several cases where the diagnosis of gallstones was made clearly by x-ray before bile drainage was done and every effort was made by repeated drainage to get a characteristic bile, without success. This is easily understood, because the ducts, especially the cystic duct, was commonly obstructed, shutting off the chief pathological area from drainage. This may prove to be a very valuable diagnostic point if not simulated

in other cases without cystic duct obstruction.

The contents of several excised gall-bladders with stones was studied for sediment and bacteria, and were found *sterile* and *without sediment*. The only grossly abnormal feature was the dark, ropy character of the bile. This may help explain why some drainages in gall bladder cases are not distinctive.

In two stone cases, on the other hand, a great excess of crystals was found, with a distinctly *gritty* sediment, and stones were correctly diagnosed.

The Cancer Cases were naturally a difficult group for study and tiresome procedures. There were five cases involving the liver and bile passages (cancer of the head of the pancreas, common duct, gall-bladder). All were deeply jaundiced, and in two the bile drainage failed, due to vomiting or lack of passage of the tube into the duodenum. In the three others, there was *entire absence* of bile with presence of pancreatic ferments and more or less blood, a picture very suggestive of malignant obstruction of ducts though, of course, absence of bile may be found in any type of complete common duct obstruction.

In Four Cases of Hepatitis, all serious, with deep jaundice, including one case of acute yellow atrophy of the liver, the drainage failed on account of vomiting.

The Technique of the Test is important in diagnosis. Just as in the Wassermann reaction, if the technique is sloppy, the test is useless, or worse than useless. Some skill, care and experience are needed. It is easy to be over-critical and say that the cultures are uncertain, the cells dubious and the separation of "A," "B," and "C" bile artificial. It is easy to get discouraged, especially if the first cases are obstructive and no bile is obtained, or there is vomiting and it is impossible to get the tube in, or stone cases are examined and the bile obtained is not diagnostic. It is better still to give the method a careful personal trial, to recognize its limitations, but to get something out of it. If this something is too small to justify the effort, the method will be discarded.

The method in all its detail of preparing the patient, intubing the duodenum, microscopical, chemical and bacteriological examination, is somewhat elaborate and time-consuming. It is not altogether agreeable. It probably requires an x-ray check for the best diagnostic work, also repetition of the drainage to avoid confusing variation, and it has its limitations. Of course, we do not want any new clinical test unless it is definitely worth the time and expense of using it.

In my own experience, the method has been useful and sometimes very useful, and I am continuing to study it.

To sum up our diagnostic findings in another way, we may say that:

1. Markedly abnormal bile, that is, thickened,

darkened bile with an excess of mucus, abnormal cells and bacteria, with cultures usually positive (staphylococcus, streptococcus, B. Colon), was found in acute cholecystitis and cholangitis and the acute exacerbations of chronic cholecystitis.

2. Slightly abnormal bile, that is, a clear "B" bile, somewhat thickened, with an increase of mucus, few bile-stained leucocytes and epithelial cells, usually positive cultures, was found in subacute and chronic cholecystitis and a few gallstone cases. In two of the latter, gritty bile, with an excess of bile salts and cholesterol, occurred.

3. Clear, normal bile, with viscosity sometimes increased and cultures usually sterile, was found in cases of chronic cholecystitis, most gallstone cases, and in normal persons. (Do not miss this. It is unfortunate for diagnosis, but true.)

4. No dark or "B" bile, with a clear, yellow, abundant flow of bile, was found in cases of cystic duct obstruction usually due to gallstones (this was several times verified at operation), also in a few mild cases of indigestion in which we do not believe the duct was obstructed.

5. No bile with pancreatic ferments present on repeated accurate drainages was found in common duct obstruction, more frequently cancerous, less frequently due to stone or stricture.

Many of these findings have been confirmed by the extensive experience of Lyon, Whipple, Smithies, Brown, Friedenwald, Sachs, and others.

Treatment.

The treatment of infections of the biliary passages is frequently surgical, but is not always so: for example, we do not operate for catarrhal jaundice or many milder types of cholecystitis. All grades of infection are found, both as regards severity, duration and the pathological tissue changes which accompany them.

It would be a serious mistake to try medical drainage on acute, urgent, virulent cases, acute or chronic empyema of the gall-bladder, severe obstructive cases which will not drain. On the other hand, there is a real and fairly wide field for medical treatment in the milder and earlier cases without marked pathological damage, as well as in some doubtful borderline cases in which biliary infections are seriously suspected without being absolutely proved, and in which an operation seems too radical. The method is only mildly uncomfortable for the patient and has no danger, as far as I have seen or heard.

I believe that the method frequently relieves biliary stasis, will help to clear out infection, will take a load off the liver and, if successful, will frequently prevent more serious damage to

liver, gall-bladder and bile passages. It may be tried, as Lyon suggested, as an alternate method of treatment where there is a question about the immediate need of surgery and perhaps a supplementary means of *continuing* drainage where immediate surgical treatment leaves the patient only partly cured. It is a matter of judgment where to draw the line between medical and surgical cases. Experience must be our guide. I frankly do not believe that all biliary tract infections need surgery in the early stages any more than all peptic ulcers do. It may be asked: What does this "drainage" accomplish? Isn't the bile running off into the bowel every day? All writers agree that biliary stasis in the gall-bladder and ducts is the forerunner of infected gall-bladders and ducts, and of gallstones. It is this stasis which the method aims to combat by giving as free drainage as possible. If there were no bile stasis there would be no place for the method in treatment. If we watch results in a group of the milder cholecystitis, choledochitis cases, we see very definite, clean-cut results within one or two months. We see the jaundice clear up, the bile return to normal in color, cells, mucus and bacteria, the symptoms gradually disappear and health restored. I have definitely watched this sequence in about twenty private patients in the past year and could not fail to be impressed. The drainage was done two or three times a week at the start and gradually dropped to once in one, two, three, or four weeks, as the case progressed. It has several times happened that the bile has cleared up more slowly than the symptoms, and it seems reasonable to continue the drainages till the bile was normal, even after the symptoms were gone, to avoid recurrence.

I realize perfectly that the *method may be abused* in this class of cases, that the diagnosis of mild cholecystitis may be carelessly made, and patients, especially neurasthenics, may be needlessly treated by this somewhat elaborate method, and may improve in health because of the strong psychic effect of the treatment in the hands of an enthusiast. It is needless to say that the method should not be used for this purpose alone.

My experience with *catarrhal jaundice* is limited to six cases. The group is too small for a definite opinion. The results of treatment were not striking in comparison with untreated cases. Some cases cleared rapidly with drainage. One or two cases in which drainage failed and no bile was obtained, ran a course very similar to those where drainage was done every three or four days. It is worth remembering that an early drainage may fail because of considerable obstruction, and later drainages be entirely successful. The treatment seems logical and we are prepared to try it further.

Even in some inoperable gallstone cases, it is apparently possible to get results with duodenal drainage. I have been forced to try this treatment, not from choice, but from necessity, in two patients with gallstones. Both had typical biliary colics; in both, the stones were clearly and beautifully pictured by x-ray, and both were considered bad surgical risks, because of angina or chronic nephritis. In both cases the treatment was begun just after a series of severe colics and in the presence of jaundice, and as a result, or sequence, of biliary drainage, all gall-bladder symptoms disappeared, the stones became entirely "latent," and have remained so for more than a year, and the patients consider themselves well, as far as the gall-bladder is concerned. Of course, this is not a plea for the use of medical drainage in gallstone cases, but merely a record of a surprising result or sequence of treatment in two inoperable patients.

I may add that I have reluctantly tried the same treatment for a short time in a few stone cases at the urgent request of the patient, who dreaded operation and was anxious to try any method which gave the slightest hope of medical relief. No gall-bladder bile was obtained, the cystic duct was obviously obstructed, and the patients came to operation as might be expected.

The *use of vaccines* is logical in infections of the biliary tract as in any other type of low-grade infection where the system is unable to produce sufficient antibodies to destroy the bacteria. We have found some difficulty in verifying a particular organism as the source of the infection, and on that account have used vaccines in only a few cases.

SUMMARY.

The profession owes Meltzer and Lyon a debt for their stimulation of the study of the liver. They have made us think and have given us a new method.

The early papers seem over-enthusiastic and dogmatic, and said too little about the limitations and difficulties of the method. We cannot agree with them in detail.

The physiology of the method, the cause of the color change, the action of $MgSO_4$ on the gall-bladder, the segregation of the bile, need further study in normal individuals or animals to give a firm foundation for clinical and diagnostic work.

Its use for diagnosis has its difficulties and limitations. It is somewhat elaborate and time-consuming, consisting of intubation, lavage, aspiration, microscopical examination, cultures etc., but it can be carried out on 9/10 of the patients chosen for examination. It requires repetition of the drainage and also the use of the x-ray for the best diagnostic work, although much diagnosis and most treatment can be done without the x-ray. The segregation of the bile.

the study and interpretation of the cells and bacteria present difficulties, most of which can be overcome by experience. The pathologic area may be blocked off by obstruction, *e.g.*, of the cystic duct, and the drainage not be very abnormal in an important case.

In spite of these limitations, the method has proved useful and sometimes very useful in diagnosis.

It helps to show whether the ducts are open or closed. If no dark or "B" bile is obtained on repeated drainage, properly performed, we may suspect cystic duct obstruction, frequently with gallstones.

If *no bile* is obtained with a proper drainage, but pancreatic ferments or blood are found, common duct obstruction is present, frequently malignant.

Cholecystitis and cholangitis cases, unless marked obstruction exists, usually give a bile which is abnormal in color, appearance, cells, mucus, and bacteria.

Gall-bladder sand may aid in the diagnosis of gallstones but, in general, the drainage in gallstone cases was not characteristic.

In treatment, it is logical to combat biliary stasis, the well-recognized forerunner of biliary catarrh, infections, and stones. We are not sure, at present, how completely this method empties the biliary passages in all cases, but in many it appears to do this very well.

The best field for its use is in the milder and moderate grade of cholecystitis and choledochitis cases, where no marked obstruction exists. Many such cases are greatly relieved, or apparently cured, following this treatment.

It is obviously unsuited for treatment of acute, virulent infections of the gall-bladder, acute or chronic empyema, gangrenous cholecystitis or cases with known stones or tumor, or severe chronic obstructive cases which will not drain. It may be occasionally useful in some of these cases when surgery is contra-indicated, as in old people, or in cardiac, renal or diabetic patients.

In closing, I wish to acknowledge my indebtedness to my colleagues at the Boston City Hospital for the opportunity to study their patients, and to my co-workers, Doctors Resnick, Berger and Sharpe, for their valuable assistance.

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DISCUSSION OF PAPERS OF DRs. JONES, BOTTOMLEY AND WHITE.

DR. ELLIOTT C. CUTLER, Boston: I think that Dr. White's presentation of what the actual situation now is, in regard to the so-called Meltzer-Lyon test, is fair. He is a little more enthusiastic than we are, but then he has dealt with the more medical type of case than we have had experience with. My own experience has been with the surgical material that has come to the Brigham Hospital and chiefly with cases of stone in the common duct or gall bladder. After a year's trial we do not feel very enthusiastic. At the same time, I do not think that we should be quite so critical as Dr. Bottomley until more controlled data are available.

As to its therapeutic value, I have little knowledge. The surgical conditions of the gall bladder and bile ducts are not amenable to this kind of treatment. Our experience has been entirely along the lines of the value of this test in the diagnosis of such conditions.

It is very unfortunate that the people who began the work with the so-called Meltzer-Lyon test published their studies without careful controls. No one has published up to the present a series of normal cases. Until we know what the normal reaction is, we cannot translate the pathological conditions. We, therefore, spent much effort doing normal cases and did some twenty cases until we had established what we thought was the normal sequence in the color and quality of bile obtained. This factor was the only one on which we could place reliance. I don't believe that the study of the cells amounts to anything. I am not an expert on renal diagnosis, but the analogy to renal diagnosis by a study of urine sediment is obvious and I don't believe people can tell, by looking at the small round cell or the large round cell in the urine what part of the kidney is diseased, still less by what mechanism.

As to the bacteriological studies, we have not had satisfactory comparative results. Whipple, of New York, reported that he nearly always got the same bacteria in the excised gall bladder as in the bile ducts. We have been able to get bacterial growth in only 50% of the cases and in these cases there have been some obvious contaminations. Moreover, the organisms obtained by the test and from the excised gall bladder have not always been the same. It is a well known fact that bile is an inhibitor of bacterial growth and very few organisms grow well in bile. We are of the opinion that there is a great deal of bacterial contamination.

After establishing the reaction in normals we went on to pathological cases and have studied thirty cases in which we have taken out the gall bladder and studied it for comparison with preoperative study. If one performs this test on a large series of cases and doesn't know what the gall bladder contains, the tests add little to our true knowledge. The actual condition must be checked up by operation or autopsy.

The only criterion on which we think we can place reliance is the evidence of stasis. With stasis the test shows abnormal bile, no gall bladder bile or no bile, according to where the obstruction occurs.

One finds an abnormal bile containing a varying sediment in cases of gall bladder disease. The sediment may actually contain gritty particles and the bile is usually dark or black and more viscid. We have seen a definitely abnormal bile only a few times. One cannot make a diagnosis of stone with this test. We do, however, make a diagnosis of gall bladder disease and in the few cases of this type we have always found gall stones.

The common finding is to get no gall bladder bile. These cases show a steady flow of light yellow brownish bile, gradually becoming lighter, which will continue indefinitely. In these cases we make a diagnosis of obstruction of the cystic duct. I think

there are about eighteen cases in which we have made this diagnosis. Only once have we been mistaken and found no pathology. What causes the obstruction is quite a different thing. In our cases it was usually due to a gall bladder with stones in which there was sedimentation of fine stones in the ampulla and at the beginning of the cystic duct or actual impaction of stone in this duct. It is not true that duodenal ulcer gives an abnormal test. However, "transduodenal bands" may do this, or even cholecystitis with much mucus.

There is further the condition in which no bile is obtained. These cases are those in which cancer or common duct stone is suspected and in which any aid in differential diagnosis would be most valuable. Usually such patients are deeply jaundiced and many lack a characteristic history of colic. In common duct stone if magnesium sulphate does inhibit the sphincter, we would always get bile, and one could thus differentiate between cancer and stone. It was our hope that in this special field the test might find its chief usefulness. We had, however, a case in which no bile was obtained and the diagnosis of cancer was made. Operation revealed a common duct stone. On the other hand, there were two cases in which repeated tests showed always a little bile and in which we therefore made the diagnosis of stone although previously operation had been thought inadvisable since the diagnosis of cancer seemed definite. Operation here showed stone.

I cannot agree that the Meltzer-Lyon test is a simple manoeuvre. It necessitates x-ray visualization each time, repetition usually and a preliminary, thorough knowledge of the reaction in normal cases. With further study it may be shown that we have here a distinct aid in diagnosis. Until, however, a greater knowledge of the reaction in normal patients to this test is available and until better evidence of the existence of the law of contrainnervation in relation to gall bladder and the sphincter of Oddi is had, we should not place too much credence in it.

DR. MICHAEL F. FALLON, Worcester: I wish to congratulate the first two readers on the presentation of their papers; I may be pardoned if I don't discuss the last paper as I know nothing about it. But the first two papers are, I think, in line with the purposes for which this organization was founded—the presentation of papers which are orthodox and sound, right premises and sound conclusions; and I sincerely trust that these papers will be published in the BOSTON MEDICAL AND SURGICAL JOURNAL.

Dr. Halstead said some years ago that acute pancreatitis, just beginning to be understood, will probably soon become a household word; and it is the dissemination of just such knowledge as these papers contain that is going to keep the surgeons on their toes and keep the public on edge to send cases of pancreatitis to the hospital. Yesterday, a forcible remark was made by one of our members that the mortality in intussusception was reduced in the neighborhood of Clulbe and this was due to the education he had given to the laity, and we heard of the reduction of the mortality that resulted from his propaganda.

I will not go into the etiology of pancreatitis but I think we can conclude that pancreatitis may be either a blood borne infection from a certain focus or an infection from the lymphatics. We may liken the biliary apparatus, including the liver and the gall-bladder and ducts and the pancreas, to a two party telephone line, in that one may butt in on the other, and not infrequently in pathological processes of the biliary apparatus the pancreas may participate; and that is seen when we think of the intimate lymphatic circulation between the biliary apparatus and the pancreas. It is astonishing how few glands there are there, and at times when one feels these glands swollen along the edge of the

common duct and feels glands around the head of the pancreas we know that there is a peripancreatic adenitis and a peripancreatic lymphangitis and I think that the surrounding tissue may become infected there, and Deaver states that he has had an authoritative case of pancreatitis from a retroperitoneal lymphangitis from the appendix. We must bear in mind that the pancreas participates in systemic disease, notably in syphilis and mumps and alcoholism and adiposity. Not infrequently the pancreas participates in these diseases, and it is fair to conclude that pancreatitis and acute pancreatitis may be present in these diseases.

Now for us the important thing is the treatment, and formerly the classical treatment was the drainage of the gall bladder on the theory that this would drain the pancreas, but now it is conceded that ectomy is the thing, to do away with source of infection, the gall bladder itself, and having removed the source, there is a possibility that the pancreas may take care of itself. We know, at least it is said by investigators, that a certain strain of streptococci is the most common cause of cholecystitis but that not in the free stream but rather in the wall of the gall bladder itself; and it has been proved recently by the injection of this strain in animals that they have an elective affinity for the gall bladder and a pancreatitis may result. The treatment: I think no one will dispute that the proper treatment of pancreatitis is surgical and that it is preferably the ectomy, the cholecystectomy, and in doing that the source of the pancreatitis is removed; and I will conclude by stating the advice given by Dr. Fitz. We all know that Dr. Fitz was a very conservative man, as regards surgery, that he at times was unwilling to permit or advise operations and quite rightly, but he said that pancreatitis—and, by the way, his writing on pancreatitis is still a classic and can be read with profit—and he said, "Fortunately, the exploratory laparotomy in an increasing number of cases has proven the most satisfactory method of treatment, and like most abdominal operations for the relief of acute symptoms, is the more helpful the earlier in the course of the disease it is performed."

DR. F. B. LUND, Boston: These cases of acute pancreatitis are of the greatest interest. Acute pancreatitis with its sudden onset accompanied by hemorrhage and fat necrosis seems to be the digestion of the pancreas by itself. It has been demonstrated by the experiment of draining the juice of the pancreas into the peritoneal cavity that no digestion takes place and the patient remains healthy. In order for digestion to take place there must be necrosis of the pancreas. Any cause which causes necrosis of the whole or a small portion of the pancreas will make possible an acute pancreatitis. If, however, acute pancreatitis is caused by bile getting into the pancreatic duct, how do we account for cases in which it is localized in a small area not corresponding to the distribution of any large branch of the duct? If infection by entrance of bile does not cause it, how is drainage of bile going to help it? Since Opie's classical observation of pancreatitis in a case in which a stone so blocked the papilla of Vater that bile had to be carried up backwards into the pancreas, and since his observation and those of many pathologists and surgeons have shown the frequent coincidence of gall stones and pancreatitis, we have come to place too much stress upon this method of causation. But if we look over our records we will find many cases in which acute pancreatitis was not attended by gallstones or, as far as we can tell, by cholecystitis. I will also show some diagrams showing that in only a very small number of cases are the pancreatic ducts arranged in such a way that blocking of the papilla of Vater either by a stone or by constriction of the sphincter of Oddi could force bile up into the pancreas. There

are many variations in the anatomy of the ducts, the duct of Wirsung and the duct of Santorini anastomosing with each other in various degrees and doing varying amounts of drainage service. In order to account for the cases of pancreatitis which could not be accounted for in this way, Dr. Deaver and others have advocated the hypothesis of the extension of the infection through the lymphatics from the gall bladder to the pancreas. These lymphatics are closely connected. We have all seen pancreatitis resulting from the direct extension from gastric ulcer and Deaver states that he has seen it result from a retroperitoneal infection from appendicitis. From our study of gall bladder cases we know that the infection is often in the wall of the gall bladder and not in the bile stream, so that to prevent infection the removal of the gall bladder would be more logical than its drainage. Deaver advocates removal of the gall bladder. Archibald, on the basis of his experimental work advocates drainage. I have seen localized subacute pancreatitis apparently come on while I was waiting to operate on a patient with cholecystitis in which there was no jaundice, no blocking of the common duct. Fat necrosis occurred in the portion of the pancreas close to the gall bladder. These cases have led me irresistibly to believe in extension through the lymphatics. I do not advocate removal of the gall bladder in acute pancreatitis because that needs immediate drainage by opening the peritoneum over the pancreas and abscesses, if there are any, and affording free drainage to the surface. If there are stones in the gall bladder it should of course, be drained but I do not believe that this drainage has a curative effect on the acute pancreatitis. In regard to chronic pancreatitis, if the surgeon in operating for gallstones on other cases feels a large swollen pancreas he calls it pancreatitis. If such a patient dies the pathologist does not find pancreatitis and is disposed to criticize the surgeon. The fact is this large swollen pancreas which was found in the gall bladder cases is to my mind an inflammatory edema associated with infection and would quickly subside after death before the case came to autopsy. The pancreas begins to be digested after death to such an extent that it is hard to make definite autopsy findings in acute conditions. Postmortem findings show two kinds of chronic pancreatitis, in one of which, the interlobular variety of pancreatitis, the pancreas is harder and smaller than the normal pancreas. In interacinic pancreatitis the pancreas is hard. The interacinic variety is more apt to be associated with diabetes and the islands of Langerhans are infected. These two definite pathological entities are not what the surgeon generally means when he speaks of chronic pancreatitis.

Now if, as we believe, these acute inflammatory swellings are due to infection from the gall bladder and we find the gall bladder inflamed and thickened, then the logical treatment is to remove the gall bladder and the Mayo Clinic states that the majority of their cases are cured of pancreatitis by this method but there are certain cases where the common bile duct runs through the head of the pancreas so that its working causes obstructive jaundice.

In these cases the last thing to do is to remove the gall bladder. What we need to do is to make an anastomosis between the gall bladder and the duodenum in order to allow drainage. I have done a cholecystoduodenostomy for what I thought was chronic pancreatitis with jaundice eight times and six of them have finally proved to be cancer. I cannot always tell the difference between the feeling of a cancer and chronic pancreatitis but the tumor in cancer gets very much larger. The localization of the tumor does not always help us for the cancer may be limited to the head of the pancreas or to the tail. Localization may be to the same portion of the head of the pancreas which is more commonly the localization of chronic pancreatitis. One reason for the pancreas getting better after removal

of the gall bladder may be the fact demonstrated by Judd and Mann that there is dilatation of the common duct with stretching of the sphincter of Oddi which would allow free drainage.

DR. DAVID CHEEVER, Boston: I should like to ask Dr. Jones whether there is any contradiction in his two statements, that is, first, tenderness over the whole pancreas is an almost universal finding; and second, that the process in the pancreas may be often completely localized in one portion, usually the head. I can contribute a recent case in which there was practically no tenderness over the pancreas. The patient's symptoms were those of high obstruction with persistent vomiting, suggesting something at the pylorus. There was little or no evidence of any inflammatory condition. He went on for a number of days, as I recall it, without definite diagnosis being arrived at, and we finally performed a gastro-enterostomy under novocain to tide him over. But he died a few days later, and autopsy showed a necrosing pancreatitis pretty well localized about the head of the organ.

In this case the correct diagnosis was not made at operation as there was no fat necrosis, no tumor, and no swelling about the pancreas nor any lesion of the biliary tract. But in reviewing the case later, after the autopsy, I realized that certain adhesions which had been found between the transverse mesocolon and left leaf of the mesentery of the small intestine, and which made difficult the performance of the gastrojejunostomy should have led to suspicion of trouble in the underlying pancreas. I think this may be a useful diagnostic point after the abdomen has been opened in cases of obscure pathology where pancreatitis is possible.

DR. HUGH WILLIAMS, Boston: It seems to me that the diagnosis of gallstones, and their location, can be very accurately determined at the present time; and that the treatment is surgical and not medical.

I think, therefore, that the method used by Dr. White should be applied to the study of the pancreatic ferments, and to the diagnosis of pancreatic disease.

DR. JONES: In answer to Dr. Cheever's question, you would not, of course, have tenderness over the whole pancreas if only a very small area was involved, but in such a condition, I believe, that no diagnosis would be made, and no operation necessary. If the head or tail of the gland is involved, I believe that there is always tenderness over the pancreas at some time in the course of the disease. Late in the disease when much of the tissue has become necrotic, there is probably no definite tenderness, just as there is little after an appendix has become gangrenous and before peritonitis has started.

With regard to Dr. Lund's drawings, they are, I believe, no proof that pancreatitis cannot be caused by a backing up of bile into the pancreatic duct. It is true that the biliary and pancreatic systems can be made into one by a stone at the papilla in only seven out of two hundred individuals, as stated by Judd, but pancreatitis certainly does not occur in any such proportion of individuals as that.

Dr. Lund says that if the necrosis of the pancreas is owing to a backing up of bile in the pancreatic duct, it should be localized about that duct. It is true that we have very few autopsies to prove or disprove this statement. Opie, however, reports two cases which show this beautifully. In one the duct of Santorini is the main duct of the pancreas and the necrosis is limited to this duct, while in a second the duct of Santorini is very small and the necrosis is limited to that area. It would appear from these two cases that pancreatic necrosis is caused, in some cases at least, by infection or a chemical destruction through the ducts.

In regard to Dr. Bottomley's paper: We are in a very peculiar position in relation to cholecystitis. We are told in almost every paper on this subject that it is impossible to make a diagnosis at the time of operating. If this is true, should we not remove the gall-bladder whenever the abdomen is opened, just as we do the appendix? Dr. White has just said that in a certain number of cases the Vincent test was negative and the gall-bladder was found to be normal. How could that be determined without removal of the gall-bladder? As the gall-bladder must be removed to determine the condition, the test would be of no value. It is nearly time to begin to get the late results on our cases of cholecystitis, without stones. We will find, I am afraid, that they have not all been cured of their attacks of pain. If we continue to remove the gall-bladder when we have no definite evidence of disease we shall, I am afraid, find that in quite a proportion of these cases the pain has continued and our results will be bad just as they were when we did a gastro-enterostomy, when no definite ulcer could be demonstrated, and just as the results are bad when the appendix is made responsible for every pain in the right lower quadrant whether it shows any pathology or not.

DR. FRANKLIN W. WHITE, Boston: I am glad that Dr. Cutler who discussed the paper called attention to the different types of the medical and surgical cases; I think that is important in forming an expression of opinion about bile drainage. The types of liver cases on the medical side of a hospital are frankly different from those on the surgical side. I think in the medical cases, the milder types of cholecystitis and cholangitis, the examination of the cells in the bile sediment is useful. Of course, any medical series of cases suffers from comparison with a surgical series because we have no operative check, we have a group of cases in which we are not *absolutely* sure of the diagnosis, so the medical men had best be very conservative, as in the case of peptic ulcer before we had the x-ray.

I will say one word about treatment—I believe that the infections of the bile passages are usually surgical but I do not believe they are always so. For example, we do not operate on catarrhal jaundice and there is no question that some of the milder gall-bladder cases get well under medical treatment. If there is no obstructive condition in the bile passages, and if we can get free drainage through the tube, it is well to give this treatment a trial instead of resorting to surgical drainage. Of course, it is not well to try this kind of medical treatment on the frankly surgical case, but I feel that it will have a place in some of the milder and earlier types of cholecystitis and cholangitis, and having watched the results in such patients, we see definite, clean-cut results within a month or two, following this treatment. We see the jaundice clear up; we see the bile which was full of bacteria and cells gradually get clearer and clearer until nothing abnormal is found, and we see the symptoms gradually disappear until the patient considers himself well again; and I don't see any way to get around these facts.

I have been forced to carry out this treatment not from choice but from necessity in two patients with gallstones. There were reasons why they should not be operated upon; and following, or as a result of this bile drainage treatment, the acute symptoms entirely disappeared, the stones became "latent" and have remained so for more than a year and the patients consider themselves well as far as the digestive tract is concerned. This is not a plea for the use of medical biliary drainage in gall-stones, but a record of sequence or results in two hospital cases.

Original Article.

CLINICAL NOTES ON HEARTS IN HYPERTHYROIDISM.

BY BURTON E. HAMILTON, M.D., BOSTON.

[From Dr. Lahey's Thyroid Clinic.]

THERE is a general agreement that hearts are profoundly affected by hyperthyroidism. There is no accepted clear understanding of the nature of the effect of hyperthyroidism on hearts.

It is clearly of considerable clinical interest to know whether or not hyperthyroidism damages the heart; if there is damage, to what extent it is disabling, and what effect treatment may have in controlling it.

It is the purpose of this paper to record a few clinical observations made from the writer's personal examinations of over 200 hearts in hyperthyroidism in the clinic of Dr. Frank H. Lahey. No attempt is made to refer to the literature on hearts in thyroidism.

These cases seem to fall naturally into two classes. There are very few intermediate cases.

The first class, which is much the larger, shows no evidence of heart damage. This class will be considered under the following headings: rhythm, enlargement, murmurs, signs or history of heart failure. These are the points one studies clinically to decide if any heart is damaged.

The rhythm of the heart beat in these cases shows nothing abnormal but a simple tachycardia. Simple tachycardia is a tachycardia that varies in normal direction with rest, exercise, vagal stimulation, etc., and is otherwise regular. It is not evidence of heart damage.

These hearts do not show enlargement. This is said with a full knowledge of the difficulties of determining accurately the size of hearts on clinical examination, and of the confusion that results from attempts to determine fine changes in the size and shape of hearts. It is generally stated that hyperthyroidism causes enlargement of the heart, so perhaps the observation that the great majority of hearts in hyperthyroidism show no evidence of enlargement needs to be amplified. The following methods of determining enlargement have been used: with the patient squarely recumbent, the apex is inspected and palpated, and the left border palpated between ribs. The borders are percussed. In the great majority of cases the apex is in the fifth interspace—well within the nipple or mid-clavicular line, the left border not outside it, and though a strong impulse is usually felt, it is not, in the great majority of cases, stronger than is noted in normal people with the heart rate raised by excitement or exercise to somewhere near the rate that the hyperthyroidism case in question shows. Percussion shows no striking change in shape or

size. Teleroentgenograms of the heart have been made in a number of cases. This method of determining enlargement is of chief value clinically where the chest wall is so rigid or thick that satisfactory inspection, palpation, and percussion are impossible. (Thin chest walls are the rule in hyperthyroidism.) Teleroentgenograms have not disagreed with the other findings; the great majority of hearts in hyperthyroidism examined by this method have shown in each single case no striking alteration of the heart's outline. In contrast to the findings in cases of hyperthyroidism in this class, the same methods of determining enlargement of the heart used with patients suffering, for instance, from definite rheumatic heart disease, or prolonged hypertension, show enlargement clearly and satisfactorily in the majority of cases.

Systolic murmurs are the rule, but they resist classification. Such murmurs are not in themselves, in the absence of other signs, evidence of heart damage. Diastolic murmurs have not been heard. Sharp or prolonged apical first heart sounds, such as are also common among young people with thin chest walls, or in neurasthenic states, are frequently heard. It is well known that these are not infrequently mistaken for presystolic murmurs, and considered to be evidence of mitral stenosis. There should be little difficulty in differentiating between these sounds and mitral diastolic murmurs to anyone familiar with both.

True signs, or history, of heart failure have not been found in this class. This class contains cases of all degrees of toxicity—up to death. It contains cases of long and of short duration. The writer has personally watched three cases in this class die. They were watched particularly for signs of heart failure. Two died of pure hyperthyroidism. One of these had a regular pulse rate that varied between 206 and 260 for 24 hours, until death; the other had a regular rate that varied from 195 to 220. Neither showed any signs of heart failure. The third died of broncho-pneumonia, without signs of heart failure.

It would appear that when cases in this class are cured of hyperthyroidism they are left with no demonstrable evidence of heart damage. To prove beyond doubt that they have no heart damage, many actual cases must be followed for many years. Unless such research proves otherwise, these cases should be considered to have sound hearts.

The second class shows definite heart changes. The whole adult community contains a small percentage of rheumatic heart disease (somewhere between one and five per cent.). Among this second class of cases of hyperthyroidism is a small number of patients with rheumatic heart disease, and hyperthyroidism added. This diagnosis has been made when history and heart findings clearly are sufficient to account for the

heart condition found, without considering the hyperthyroidism. It does not seem suitable to attempt to enlarge on points used in diagnosis of rheumatic heart disease in this paper.

There are a very few borderline cases in this class where it is impossible to tell whether or not rheumatic infection is a factor in the heart changes.

Each case that the writer has happened to see of definite rheumatic heart disease, with hyperthyroidism, has shown auricular fibrillation. Auricular fibrillation occurs in only a small fraction of cases of rheumatic heart disease uncomplicated by hyperthyroidism. Signs of heart failure have been seen in this group.

A larger group of class 2 have definite hyperthyroidism and either paroxysmal or established auricular fibrillation, and no evidence of rheumatic or other heart disease. Signs of heart failure have been seen in this group. It is evident then that a number of cases of hyperthyroidism (about 10 per cent. in this clinic) have auricular fibrillation as a more or less direct result of hyperthyroidism. Some clinical association of hyperthyroidism and auricular fibrillation has long been generally known. This class of cases contains patients of different degrees of toxicity, and of long or short duration of hyperthyroidism. So these factors alone do not determine the onset of auricular fibrillation. Other factors in the production of auricular fibrillation in hyperthyroidism are as follows: 1. The average age of the cases of hyperthyroidism showing auricular fibrillation is 20 years greater than the average age of all the cases of hyperthyroidism. Very few cases of hyperthyroidism over 50 years of age fail to show auricular fibrillation. 2. History of repeated tonsillitis or of rheumatic fever is commoner among the cases of hyperthyroidism with auricular fibrillation than among the cases of hyperthyroidism without evidence of heart damage. 3. Definite rheumatic heart disease has been mentioned above as a factor.

ANALYSIS OF CASES OF HYPERTHYROIDISM SHOWING AURICULAR FIBRILLATION.

It has been possible to secure data sufficient for some analysis of eighteen of the cases of hyperthyroidism showing auricular fibrillation.

Six of these had paroxysmal attacks of auricular fibrillation occurring at frequent intervals (hours or weeks) over a period varying from a few months to several years. The attacks lasted a matter of a few minutes to a few days. (The onset of any attack appears haphazard.) In one case the attacks occurred every seven to ten days and lasted about nine hours.

All of these cases have been relieved of hyperthyroidism symptoms by operative measures. Apparent cessation of the paroxysms of auricular fibrillation followed this relief. Elapsed time since relief of hyperthyroidism, and cessa-

tion of the attacks to this date, is from several weeks to several months. This time is short. But the relief from the attacks is very striking. The effect of digitalization on these cases also deserves notice. It has frequently been possible to digitalize patients promptly after the onset of an attack of paroxysmal auricular fibrillation. Nearly always the attack has ceased shortly after the ventricular rate has been slowed by digitalis. Where possible a single large dose of powdered leaf has been used. Occasionally a second smaller dose has been given after six hours. Often the attack has ceased before time came for the second dose.

The other twelve cases had established auricular fibrillation. Four of these had rheumatic heart disease. One of these four was not operated. One was operated and died. This case had shown signs of heart failure, though not for some time previous to operation. Of the other two operated, one stopped fibrillating after operation and relief of symptoms of hyperthyroidism (about six months ago). The other, and the one not operated, were still fibrillating when last seen. One of these had severe heart failure which cleared slowly with digitalis.

Of the remaining eight, three were not operated. All three continue to fibrillate. Of the remaining five, two stopped fibrillating, and have remained with a normal rhythm after relief of hyperthyroidism by operation, and digitalization. The change to normal rhythm has come two days to one week after operation, while digitalized.

Of the total seven hyperthyroidism cases with established auricular fibrillation, relieved of hyperthyroidism by operation, three have resumed normal rhythms. Of the four who did not, two had definite rheumatic heart disease. The other two have had auricular fibrillation for several years. None of these whose normal rhythm has been established has relapsed to date—the elapsed time since relief of auricular fibrillation to this date is respectively a few weeks, eight months, more than a year. Of thirteen with either paroxysmal or established auricular fibrillation relieved of hyperthyroidism symptoms by operative measures, nine have been relieved of auricular fibrillation.

Digitalis reduces the ventricular rate in all the fibrillators. All of these digitalized are conscious of and grateful for the slower rate. They have less disability. The ones cured of auricular fibrillation have all been conscious of, and grateful for, the change, and have apparently less disability. Digitalis apparently had something to do with the return to normal rhythm in those that were cured. The change to normal rhythm came while slowing of the ventricular rate, at least partly due to digitalis, was established. On resumption of a normal rhythm (after cure of auricular fibrillation) they have had a markedly higher ventricular rate in spite

of being still digitalized. Another inference from this is that digitalization does not materially lower the heart rate in hyperthyroidism cases that do not have auricular fibrillation.

CONCLUSIONS

From personal examination of a large number of hearts in hyperthyroidism cases it appears:

1. The great majority of hearts in cases of hyperthyroidism are found with no evidence of damage. Heart failure is not found in this class of cases—even where death occurs.
2. Hyperthyroidism in the presence of (a) rheumatic heart disease—(b) middle age (over 45 years), has a tendency to cause established or paroxysmal auricular fibrillation.
3. Many cases of hyperthyroidism showing auricular fibrillation are relieved of their auricular fibrillation after relief of hyperthyroidism by operative measure, while digitalized.
4. Cases with auricular fibrillation without true signs of heart failure have stood operation well.
5. All auricular fibrillation cases with hyperthyroidism can be improved by digitalization. It is suggested that digitalization has a favorable influence on the cure of auricular fibrillation in hyperthyroidism.

This is in the nature of a preliminary report. It is intended to continue study of hearts in hyperthyroidism in this clinic for a long period.

Book Reviews.

Acute Epidemic Encephalitis. An Investigation by The Association for Research in Nervous and Mental Diseases. Report of the Papers and Discussions at the Meeting of the Association, New York City, December 28th and 29th, 1920. New York: Paul B. Hoeber, pp. xxii, 258.

Somewhat over a year ago, an association was formed for the purpose of research in nervous and mental diseases. The first meeting on the subject of "Epidemic Encephalitis" was held in New York in the latter part of December, 1920.

The volume before us is an epitome of the papers presented at that meeting. It represents the essentials of our knowledge of the disease up to that time. Papers were presented on the history, symptomatology, diagnosis, course, prognosis, morbid anatomy and etiology, with animal experimentation from persons particularly versed in these various phases of the subject. It is a significant contribution not only from the material, carefully correlated and arranged, but also as an example of the type of work which should be very much more extended.

Of particular interest is the discussion of pathological anatomy and of the experimentation at the hands of Drs. Israel Strauss and Leo Loewe, relative to the possible bacterial etiology of the disease. The difference of opinion between these observers and Dr. Harold L. Amoss of the Rockefeller Institute is well known, and leaves the subject still in an undecided state so far as these investigations go. The question and answer method used in developing the various topics is reproduced verbatim, which adds definitely to the readability of the book as a whole.

In general, the book is a notable contribution on an important subject; a carefully prepared and comprehensive bibliography adds to its value for reference purposes. This type of publication is an example which might well be followed in other departments of medicine. Should the plan be widely developed, it would give rise to a series of monographs of distinct credit to American medicine.

Anatomy of the Brain and Spinal Cord. By J. RYLAND WHITAKER, B.A., M.B. Lond. Fifth Edition. Edinburgh: E. & S. Livingstone. 1921.

Previous editions of this compendious manual of the anatomy of the central nervous system have been favorably reviewed in the JOURNAL. This fifth edition, after an interval of nearly ten years, is a welcome restoration to accessibility of a valuable brief monograph. In this book, both anatomic nomenclatures are used, distinguished by different type, so that each reader may easily choose which he prefers. Some new matter is added, and previous descriptions are rewritten and extended, to make obscure passages easier to understand. New tables are also given for quick and easy reference. The volume is illustrated by a series of 36 full-page plates, nearly all in colors. It is a work of admirable simplicity upon a highly complex and intricate subject.

Manic-Depressive Insanity and Paranoia. By PROF. EMIL KRAEPELIN; translated by R. MARY BARCLAY, M.A., M.B.; edited by GEORGE M. ROBERTSON, M.D., F.R.C.P. Edin. Edinburgh: E. & S. Livingstone. 1921. Pp. 280. Forty-nine illustrations, eighteen in color.

For lack of an English translation of the eighth edition of Kraepelin's Text-book of Psychiatry, his conceptions of the different forms of mental disease have been, by many, only superficially appreciated. This is especially true of manic-depressive insanity, although as to its main features his teachings have been generally accepted and adopted. The book is a companion

volume to *Dementia Precox and Paraphrenia*, translated from the same source.

The author's abandonment of "involutional melancholia" as a special clinical form, and his inclusion of it as one of the phases of manic-depressive insanity, is frankly admitted and explained. Delusional mania and melancholia, together with confusional states, are also added.

Several problems remain to be solved, chiefly that of the morbid process underlying and unifying the various manifestations of the disorder, and also more exact differentiation of certain cases of dementia precox, amentia, and paraphrenia from manic-depressive insanity. The author lays stress on the important point that this disorder is, in general, independent of external influences, a fact which shows that the real, the deeper cause of the malady is to be sought in a permanent morbid state which must also continue to exist in the intervals between the attacks. There seems to be, therefore, some basis for the prediction that has been made that the roots of the disease will be found in the bio-chemical activities which form the basis of psychic life. In this connection, the chapter on Fundamental States, comprising the depressive, manic, irritable and cyclothymic temperaments, is an interesting and enlightening personality study.

Twenty pages are devoted to Manic States, of which the author gives four subdivisions: hypomania, acute mania, delusional forms and delirium. With less justification, he resolves the Depressive States into six forms, among which are "Fantastic Melancholia" and "Delirious Melancholia." The clinical importance of Mixed States is recognized in an interesting chapter of sixteen pages. Of these, eight subdivisions are made, with the comment that further characterization of individual forms is inadvisable at present. Clinically, they would seem valueless. As regards their frequency, in 899 of his cases, 440 were of the depressive, 149 of the manic, and 310 of the mixed type. The fact is emphasized that the delimitation of the individual forms of the malady is, in many respects, wholly artificial and arbitrary.

Kraepelin admits that we are in complete uncertainty as to the psychosis, both the frequent return of the attacks and the peculiar alternation of excitement and inhibition being complete enigmas.

In the chapter on Diagnosis, the author clearly, and in detail, differentiates the disorder from many other mental states: neurasthenia, "moral insanity," querulent delusion, compulsive neurosis, cerebral syphilis, arteriosclerosis, confusional insanity, hysteria, psychogenic depression and mental defect. For his views on its diagnosis from dementia precox, the reader is referred to the companion volume above mentioned.

The last quarter of the work is devoted to the consideration of Paranoia. Here his views are equally sound. Stripped of its former excrescences in the shape of "paranoid" states, alcoholic and syphilitic psychoses, and especially a series of psychogenetic forms of mental disease, the true paranoia of Kraepelin now stands as a relatively uncommon, circumscribed, degenerative disorder, the prominent feature of which is the insidious development of a permanent and unshakable delusional system resulting from purely internal causes, and accompanied by perfect preservation of clear orderly thinking, willing and acting.

The author considers the Freudian doctrines, as applied to paranoia, to be unsupported either by a clearly defined conception of the disease or by evidence at all acceptable.

The translation is everywhere accurate, but more literal than clear, and not a few sentences are cumbrous. These are, however, minor flaws in an otherwise admirable piece of work.

Current Literature Department.

ABSTRACTORS.

GERARDO M. BALBONI	CHARLES H. LAWRENCE
LAURENCE D. CHAPIN	HERMAN A. OSGOOD
AUSTIN W. CHEEVER	FRANCIS W. PALFREY
ISADOR CORIAT	EDWARD H. RISLEY
ERNEST M. DALAND	WILLIAM M. SHEDDEN
RICHARD S. EUSTIS	GEORGE G. SMITH
ROBERT M. GREEN	JOHN B. SWIFT, JR.
JOHN B. HAWES, 2d	WILDER TILESTON
JOHN S. HODGSON	BRYANT D. WETHERELL
FRED S. HOPKINS	

THE DUODENAL TUBE: ITS USE IN DIAGNOSIS AND TREATMENT.

At a recent meeting of the Suffolk District Medical Society, Dr. CHESTER M. JONES presented a paper on the use of the duodenal tube in diagnosis and treatment.

As an introduction, he outlined briefly the history of various methods of obtaining contents of the duodenum, with the final evolution of the present duodenal tube, introduced by Einhorn, and later slightly modified by Rehfuess, Lyon, and others. The most satisfactory method of introducing the duodenal tube into the duodenum was then outlined in detail, especial emphasis being laid upon the use of the fluoroscope in establishing the actual position of the tube at any given time. In the event of a fluoroscope not being available, various tests were mentioned as indicating the presence of the tip in the duodenum. The presence of bile, an alkaline reaction, abdominal auscultation following the passage of air through the tube, etc., were all discussed, and a warning given against depending on any single sign as proof as to the position of the tube. The usual causes of delay—retching, profuse salivation, ptosis, sluggish peristalsis, pylorospasm, adhesions, coiling of the tube in the stomach, etc.—were considered, and the means of combating them outlined.

He then discussed the various diagnostic points to be considered in examining duodenal contents. Normal duodenal contents were described. The usual normal fasting duodenal contents are clear, yellow, alkaline, viscid, flowing in an intermittent stream,

with occasional small flocculi, and with a specific gravity of 1.004 to 1.008. Variations from the normal curve of the tube, as seen by fluoroscope, were mentioned, and Palefski's work on the interpretation of abnormal angulation or distortion of this curve. The alkalinity of the duodenal contents was discussed, as entirely analogous to the acidity of the gastric contents. At the present time sufficient numbers of observations have not been made on this point, but it appears that the alkalinity of the duodenum is not to be interpreted as a function of gastric acidity and secretory activity, although influenced by this, but is distinctly a function of biliary and pancreatic activity. The importance of using the duodenal tube, to determine the presence or absence of bile in the duodenum in cases of long-continued, severe jaundice, was brought out. Valuable confirmatory evidence for or against complete biliary obstruction may thus be obtained. The activity of pancreatic enzymes was then noted, and the reliability of the various tests for pancreatic insufficiency discussed. Practically all of the methods previously evolved are of little value, on account of the fact that they are based on inconstant findings, or on only very gross qualitative estimations of enzymatic activity. The method recently published by McClure, Wetmore and Reynolds promises to be of value for two reasons: First, it shows only slight and reasonable variations in a large series of normal cases, and second, because it is quantitatively accurate, and takes into account the Ph of the duodenal contents, the instability of the enzymes, and necessity of uniformity in the media to be digested. Further results are to be looked for by this new method.

The method of "biliary drainage," as evolved by Lyon, was then discussed in detail. Lyon's technic, the use of a hypertonic solution of magnesium sulphate, and the segregation of A, B and C biles were outlined. According to Lyon's method, diagnosis of the level of biliary pathology is made by noting in the A, B and C fractions the amounts, color, viscosity, abnormal cytology, bacteriology, etc. In discussing Lyon's method of diagnosis Dr. Jones pointed out that certain reservations should be made. Experimental evidence of gall-bladder contractions, following the use of magnesium sulphate, he pointed out, is distinctly lacking. Even if normal gall-bladder contractions are increased by magnesium sulphate, such contractions must be extremely slight, according to all previous experimental work on normal gall-bladder contractions. The importance of this increase in gall-bladder contractions has probably been much overstressed. Furthermore, in the great majority of cases the sequence of A, B and C bile is not absolutely distinct, and separation of the three fractions is, to some extent, artificial, and varies with the individual observer. The so-called B bile, with its darker color than A and C fractions, is probably due to three factors,—an increased flow of bile into the duodenum, due to a relaxation of the common bile-duct sphincter, slightly increased gall-bladder contractions, and passive siphonage of bile from the gall-bladder. Attempts to decide upon the level of biliary tract pathology from the type of cells found in the sediment is probably as fallacious as attempts to localize genito-urinary pathology by the type of cells in the urinary tract. Too elaborate methods of attempting to obtain a sterile field for bacteriological examination were criticized as unnecessary and fallacious. Heavy growths of organisms in pure culture, or as a markedly predominating growth in cultures obtained under ordinary and simple methods of cleanliness and sterility, are undoubtedly of significance. Too much attention to bacteriological findings frequently leads to misleading conclusions.

A modification of the above method was then described. It consisted in the procuring of fractions before and after the use of magnesium sulphate solution, and in addition to examining for abnormal sediment and bacteriological findings, the various bile pigments were carefully estimated by simple spectroscopic or colorimetric methods. Studies made on various types

of diseased patients showed that a marked and definite increase in bile pigments in the duodenal contents takes place under certain definite conditions. Increased blood destruction, with or without liver damage; liver damage alone from various processes, in the absence of abnormal blood destruction; and biliary stasis—all resulted in the elimination of increased amounts of bile pigments in the duodenal contents. This abnormal pigment elimination was illustrated in cases of pernicious anemia, hemolytic jaundice, various types of hepatic cirrhosis or other involvement, and in cases of cholecystitis and cholelithiasis, and was carefully contrasted with normal controls. The frequent association of hepatic involvements in cases of chronic gall-bladder disease was particularly emphasized. By the above modification of Lyon's method, along with careful consideration of sediment findings, etc., it was pointed out that a much clearer idea might be obtained of the pathological physiology of biliary tract disease. The details of this work will be published in the near future in the *Archives of Internal Medicine*.

In discussing treatment by means of the duodenal tube, Dr. Jones pointed out that therapeutics by "biliary drainage" should be attempted only in carefully selected cases. Catarrhal jaundice, chronic cholecystitis with bile stasis, without liver involvement, and occasionally acute cholecystitis, if surgery is not immediately warranted, are all indications for duodenal drainage. So-called migrainoid types are probably relieved as much by the psychic stimulus of seeing bile drainage as by any real relief of local pathology. Cases in such a group, that by more careful study show evidence of biliary tract pathology, probably warrant the use of the tube. Cholelithiasis offers no logical basis for treatment by biliary drainage. Probably cases of chronic cholecystitis, with evident liver involvement, should have the benefit of operative treatment, with subsequent bile drainage by the duodenal tube.

The use of duodenal intubation in following cases of typhoid fever, and other processes apt to involve the biliary tract, was mentioned. Finally, the use of the tube was discussed as a means of alimentation in cases of pernicious vomiting of pregnancy, post-operative vomiting, stuporous conditions, etc., and rarely as a means of supplying fluid after other common methods had been fully tried.

In conclusion, the speaker emphasized the real value of the duodenal tube in selected cases, both for diagnosis and treatment. Its use should properly be limited to hospital clinics, or to practitioners having full access to a fluoroscope and technical assistance. Scattered observations made by men using the test only occasionally were not warranted, and would probably lead to misleading results.

The paper was discussed by Dr. Franklin White, Dr. McClure, Dr. Palfrey, Dr. Frederic Lund and Dr. Daniel Jones.

A COMPARATIVE STUDY OF SYPHILIS IN WHITES AND NEGROES.

By ERNEST L. ZIMMERMANN, M.D., (*Archives of Dermatology and Syphilology*, Vol. 4, No. 1, July, 1921.)

There has been much speculation in regard to the variations in the reaction of persons to syphilis. Inheritance probably plays a part, and environment in its broadest sense, which includes occupation, habits, associated disease and the effect of treatment, influences the course of the disease. There may be added to these, the variation in strain of the spirocheta pallida, a conception apparently substantiated by recent animal experimentation. It cannot be assumed, however, that strains infecting the whites, except in so far as racial antipathy and the legal restrictions placed upon miscegenation prevent intimate personal contact between the races and pave the way for the evolution of strain variations.

In this paper, a comparative study of syphilis in

whites and in negroes is undertaken for the purpose of emphasizing inherited racial differences in response to syphilitic infection. The author presents a review of investigations that have thus far been accomplished, besides presenting the results of the investigation upon the syphilis of the Johns Hopkins Dispensary, where 1843 cases,—893 whites and 950 Negroes—were studied. The manifestations of the three different stages of the disease in both races were studied and compared. The following general conclusions were formed:

Primary Syphilis.—Extragenital infection is relatively infrequent in Negroes. Among them the age of infection is one or two years earlier than in the white population.

Secondary Syphilis.—Characterized in the Negro by marked polyadenitis, by frequent and severe osteo-arthritic symptoms, by the frequency of iritis, and by the high incidence of follicular and pustular syphilids. A striking racial peculiarity is the frequent occurrence of the annual papular syphiloderma.

Tertiary Syphilis.—Bone syphilis is the most frequent lesions of tertiary syphilis in the Negro, exceeding neurosyphilis, which in white patients comprised almost half of all late manifestations.

Cardiovascular syphilis is more frequent in the Negro, with an incidence of two to one in colored and white males, respectively.

Stricture of the rectum and elephantiasis vulvae are extremely common in the colored people.

Leukoplakia is rare in the Negro.

Tertiary adenitis is common in the Negro.

Neurosyphilis is more frequent in white patients than in Negroes. The Negro is less likely to develop tabes or paresis, while the large group of unclassified cases of cerebrospinal syphilis is approximately of equal frequency in the two races. In Negroes it is especially likely to manifest itself in the form of cerebral endarteritis.

Conclusion.—In respect to syphilitic infection there exist inherited biological differences between white and Negro patients. The Negro develops intense reactions on the part of cutaneous and osseous structures, and is relatively free from tabes and paresis. In white patients, syphilis more frequently runs its course with skin manifestations slight or absent, but there is a greater tendency toward the eventual development of tabes or paresis.

DISCONNECTING THE GASTRO-ENTEROSTOMY STOMA.

WEBB, R. C. (*Surg., Gynec., and Obstet.*, December, 1921). This author presents a clinical and experimental study on this subject. Its indications are only in cases where a gastro-enterostomy has been needlessly performed under a mistaken diagnosis, and does not apply in case of gastrojejunal ulcer following gastro-enterostomy.

The writer states that gastro-enterostomy should not be performed without demonstration at the time of operation of the definite indication or lesion; disconnecting gastrojejunal stomata should be preceded by most careful clinical and laboratory studies; from the three clinical cases cited it is seen that the closure is safe and that it is a safe procedure: the results in the three clinical cases and the two animal experiments prove the value of the use of a cuff of stomach wall and the efficiency of the method to prevent con- of gastro-intestinal anastomoses may often be indistinct: the Andrews operation, with the slight modifications suggested, should become a standardized procedure as long as the indiscriminate use of gastro-enterostomy, without indication, is continued.

Microscopic examination of the cuff or stomach tissue included in the jejunal suture shows that this does not form a basis of new ulceration, nor does it in any way interfere with the function of that particular part of the small intestine. The glandular area of the stomach remains practically normal in appearance even in its new position. The operation would, therefore, seem safe and valuable. [E. H. R.]

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DOMICILIARY TREATMENT OF TUBERCULOSIS.

THE State of Massachusetts has such remarkably good facilities for the sanatorium and hospital treatment of tuberculosis that we are at times apt to forget that the patient's stay in a sanatorium or hospital is but a part of treatment, the most important parts of which come before and after his entry into the sanatorium. Despite the fact that the majority of those in a position to speak with authority on this subject believe that practically every patient should have the benefit of sanatorium treatment and the lessons which can be learned only at a sanatorium, the fact remains that home treatment will always play an important part in the welfare and health of the consumptive.

The secret of home treatment depends upon the faithful attention to detail. Physicians are apt to tell their patients to lead a quiet, restful life and too often forget to tell them how to do so. Take the question of rest, for example. It is perfectly possible for a patient to spend twenty-four hours of the day in bed and yet not be at rest. The recent work of Gerald Webb, of Colorado Springs, has taught us a great deal about absolute rest. According to his method, by means of bags of short or varying weight placed over the affected part

of the lung so that this part is used less than a sound lung, and by means of sandbags so that the arms and legs are kept absolutely quiet, a condition of approximately absolute rest can be obtained. This treatment is only possible for a few minutes at a time, at first, the periods during which it is carried out being gradually lengthened. Excellent results have been recorded in the case of patients who had reached a stationary condition under what was formerly erroneously called "absolute rest in bed."

The question of exercise is one needing careful supervision. Doctors are apt to tell their patients to take a short walk, but they do not tell them how long or how short this walk should be. They do not tell them that a five-minute walk in wintertime, with ice, snow and wind, is equal to a fifteen-minute walk in milder weather and under better conditions.

Diet is another part of treatment which too often is left with vague generalities. The patient is told to take milk and eggs, butter and cream, and in other ways to live on a wholesome, nourishing diet. This means much or little, as the case may be. The world is full of dyspeptic consumptives who can lay their ills in this regard at the door of their physicians. The patient is very apt to argue that if one quart of milk a day does a certain amount of good, four quarts of milk would do four times as much good, etc.

In this era of therapeutic nihilism we are apt to discount the value of drugs. Tonics, such as Nux and Gentian, the "Mixture 13" of the Massachusetts General Hospital, are thrown into the discard simply because we cannot prove to ourselves or demonstrate on guinea pigs or rabbits that they do good, and yet the fact remains that in many cases such tonics do good even if it is only because of the fact that the patient has been firmly and impressively told that the tonic will increase his appetite and will make him feel better. Christian Science of this type might well play a larger part than it does in our modern therapeutics.

Cough can often be controlled by simple, homely remedies, and, with a little instruction and help from the physician, the raising of sputum and the coughing spell which the average consumptive is bound to have, can be reduced to a minimum, or at least can be made a periodic affair, morning, noon and night.

Fresh air and cold air are commodities which are apt to be handed out rather too generously to patients exposed to our New England winters. The average patient and, indeed, many well people and physicians, seem to feel that air to be fresh must be cold. There are many consumptives, and, indeed, many of those who are not consumptives, who are sleeping, or attempting to sleep, between shivers, in the open air, who would be vastly better off in a warmer, comfortable room (which they are really long-

ing for), with less air and more comfort. As Dr. Chadwick, of the Westfield State Sanatorium, where there are over 200 children, has clearly demonstrated, extreme cold is devitalizing as well as extreme heat.

What has been said concerning cold air might well be repeated concerning cold water. There are a few people, consumptives and well people, who seem to enjoy and to profit by getting out of a warm bed into a tub of ice-cold water. There are many more individuals, consumptive and otherwise, who fool themselves into believing that they profit by such a procedure. There is an increasing sentiment and a sensible one, against this, however. This prodigal and wasteful expenditure of vital energy does not do good in the vast majority of cases.

The faithful attention to these subjects on the part of physician and patient will make the results of home treatment of tuberculosis better than they now are.

THE ALCOHOL QUESTIONNAIRE.

EFFORTS to demonstrate facts relating to medical practice are of value in proportion to the advantage of the application of the testimony. When the public was informed of the purpose of the *Journal of the A. M. A.* to get the testimony of physicians as to the value of alcohol in the treatment of disease, there were varying opinions of the benefits to be derived. That a certain knowledge has been acquired, is beyond question, but the knowledge seems to be a demonstration of personal interpretation of a problem and, in certain instances, in accordance with some prejudice.

From a psychological standpoint, it seems to be largely a question of how far physicians exhibit unreasoning conclusions, and it may be that the analysis is useful in so far as it may be used to estimate the attitude of doctors toward a medico-social problem. If that was the purpose of the *A. M. A.*, no one should criticise it. If, however, the purpose was to determine the value of alcohol as a therapeutic agent, the method is open to criticism. The *Journal of the A. M. A.* is, of course, aware of the fact that a very small proportion of the practising physicians are competent to submit any drug to scientific analysis, and the result of the questionnaire demonstrates that there is no unanimity of opinion relating to the value of alcohol as a therapeutic agent. If the *Journal of the A. M. A.* had in mind the advantage of establishing the position of alcohol in therapeutics it would have been far better to have spent the money in employing experts in physiology and pharmacodynamics, under a commission, to state in scientific terms the effect of alcohol

when used in the human body, and the indications for its therapeutic application, for although such statements might be repetition, they would be authoritative.

We do not ask the general practitioner for opinions on radium, the limitations of digitalis, the abuse of strychnia, nor the relative value of antiseptics, and general practitioners do not, as a rule, generally employ powerful agents except as they derive information from others as to their value. If the *Journal of the A. M. A.* had published the opinions of Cannon, Diner, Mallory of Washington, or Stockton of Buffalo, together with other scientific investigators, the value of alcohol in treating disease would be more clearly defined in the minds of practitioners, and the profession would not have been subjected to the ridicule which has been freely expressed.

The social aspect of the alcohol question is a subject by itself, and had better be dealt with as such. It rather seems now that the *Journal of the A. M. A.* should carry through and put the therapeutic value of alcohol before the readers, rather than leave the matter where it is.

INCOME TAX FACTS.

THE new requirement of the income tax law that returns shall be made of gross income of \$5,000 or more regardless of the amount of net income upon which the tax is assessed, necessitates careful computation on the part of the taxpayer. "Gross income" includes practically every dollar received by the taxpayer during the year 1921 in salaries, wages, commissions, rents, royalties, interest on bank deposits, cash dividends on stock, "or income from any source whatsoever." "Net income" is gross income less certain deductions provided for by the act, including all business expenses incurred in the conduct of a business, trade, profession or vocation.

Certain expenditures, however, are not deductible as a business expense when made for the purchase of articles more or less permanent in character, or for permanent improvement of property. For example, a merchant would not be allowed to deduct the amount expended in the erection of a new store, or a farmer the cost of a new tractor or thrashing machine, since such investments are held to be capital investments. The law expressly prohibits the deduction of family or living expenses, such as rent for a dwelling, repairs to a dwelling, cost of food and clothing for the family, education of children, servants' wages, and similar items. Amounts spent during the year 1921 for any of these items are not deductible.

NEWS ITEMS.

NORFOLK DISTRICT MEDICAL SOCIETY.—A meeting was held on January 31, 1922, at Tufts College Medical School. Dr. C. D. Knowlton presided. Dr. Abraham Myerson spoke on "Hemiplegia in Syphilis." He cited cases in which the hemiplegia seemed to follow encephalitis, gummata and arteritis—all of syphilitic origin. He discussed, especially, the cases over fifty years of age, which showed both the signs of syphilis and of arteriosclerosis. He believes that when both these conditions exist in the same patient who suffers from hemiplegia, that the syphilis may be of as great, or even greater, importance than the arteriosclerosis, as the etiological factor.

Dr. Timothy Leary described the types of hemorrhage usually found at autopsy. He emphasized the fact that death from hemorrhage of the brain was not nearly as sudden as some forms of cerebral edema. He also vividly compared the number of deaths occurring from the administration of arsphenamin and those from the administration of serum (anaphylaxis). For one death from serum in his whole experience, he has seen 17 from the various forms of arsphenamin, in the last few years.

Dr. Edward N. Libby discussed the papers. The usual Norfolk District supper was served after the meeting. Over 70 members attended the session.

JOSEPH I. GROVER, M.D.,

Correspondent for the Norfolk District.

WORCESTER DISTRICT MEDICAL SOCIETY.—The regular meeting was held Wednesday, February 8th, at 4.15 P.M., at Memorial Hospital.

Program: Empyema: Report of 100 Cases, Dr. Donald Adams; Embolic Pneumonia: Report of a Case, Dr. O. H. Stansfield; Caesarean Section in the Presence of Pneumonia, Dr. Walter Seelye; Sarcoma of Jaw (case report), Dr. Harold Gibby; Spinal Cord Lesions, Dr. Benj. Burley; The Whitman Loop Operation, Dr. C. E. Ayers; Why Wait for K. L. Culture Reports? Dr. C. B. Stevens; Pregnancy Complicated by Fibroid, Dr. Jas. O'Connor; A Case of Hodgkin's Disease Treated by Transfusion, Dr. Benj. Alton.

After the meeting the members were invited to remain for light refreshments and a "run together."

February 24th, at 4.30 P.M., in the Bancroft Ball Room, Dr. Joseph Colt Bloodgood, Johns Hopkins University, will give an illustrated lecture to which all doctors and dentists are invited. At 6.30 P.M., a complimentary dinner will be given to Dr. Bloodgood by the associated Medical societies, the Dental Society, Chamber of Commerce, and affiliated clubs. At 8.30 P.M., there will be a two-reel movie, after which Dr. Bloodgood will give an illustrated lecture—both open to the general public.

DURING the week ending January 28, 1922, the number of deaths reported was 226 against 217 last year, with a rate of 15.53. There were 35 deaths under one year of age against 32 last year.

The number of cases of principal reportable diseases were: Diphtheria, 60; scarlet fever, 50; measles, 96; whooping-cough, 11; typhoid fever, 3; tuberculosis, 54.

Included in the above, were the following cases of non-residents: Diphtheria, 3; scarlet fever, 7; whooping-cough, 1.

Total deaths from these diseases were: Diphtheria, 6; scarlet fever, 2; tuberculosis, 15.

Included in the above, were the following cases of non-residents: Scarlet fever, 2; tuberculosis, 2.

Influenza, 35 cases; 3 deaths. Lobar pneumonia, 33 cases; 11 deaths.

DURING the week ending February 4, 1922, the number of deaths reported was 229 against 231 last year, with a rate of 15.64. There were 38 deaths under one year of age against 36 last year.

The number of cases of principal reportable diseases were: Diphtheria, 84; scarlet fever, 58; measles, 106; whooping-cough, 7; typhoid fever, 2; tuberculosis, 31.

Included in the above, were the following cases of non-residents: Diphtheria, 6; scarlet fever, 13; tuberculosis, 2.

Total deaths from these diseases were: Diphtheria, 4; scarlet fever, 1; measles, 1; tuberculosis, 14.

Included in the above, were the following cases of non-residents: Diphtheria, 1; scarlet fever, 1; tuberculosis, 1.

Influenza, 148 cases; 3 deaths.

THE INTERNATIONAL JOURNAL OF PUBLIC HEALTH.—The supplement to Volume II, No. 6, publishes the announcement that with this issue, the *International Journal of Public Health* ceases.

ANTI-PNEUMONIA VACCINE.—Dr. Park, Director of the Bureau of Laboratories of New York City, has prepared a vaccine which, he claims to have definite value in protecting against pneumonia, and this is endorsed by Dr. Copeland, Commissioner of Health. Three injections are required at intervals of four or five days. The Health Department is making strenuous efforts to produce a sufficient supply of the vaccine. Dr. Copeland claims that the vaccine will protect against pneumonia in "a very large number of cases," and even if pneumonia develops, the vaccinated patient is likely to exhibit a milder form of pneumonia than would otherwise be expected. Special stations will be established for distribution of the vaccine for those unable to pay for it.

Physicians are being furnished with the vaccine.

The vaccine contains varieties of pneumococci known as Types I, II and III.

ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH.—The twentieth anniversary of the foundation of this organization was celebrated January 20, 1922. Brief speeches were made by John D. Rockefeller, Jr., and Dr. William H. Welch.

MME. CURIE.—The French Academy of Medicine has broken away from its traditions and elected Madame Curie to membership. She is the first woman to be thus honored.

WORCESTER STATE HOSPITAL STAFF MEETING.—Dr. Frank E. Stowell was the speaker at the Staff Luncheon at the Worcester State Hospital, on February 3rd. The subject of his talk was "Electrotherapy." New forms of treatment were explained, and a discussion followed.

THE *New York Medical Journal* presents a sarcastic criticism of the book reviews which appear in medical journals, and states that reference to a mis-spelled word is about the only resource of the critic. The statement is made that "the average medical book review is a perfunctory insult to the intelligence of the audience."

The reviews in the BOSTON MEDICAL AND SURGICAL JOURNAL should be read by the editor of the *New York Medical Journal*.

In recognition of the work done by Dr. Henry Pickering Walcott as a public health administrator, the fund for the establishment of the new school of public health will be known as the Henry Pickering Walcott fund.

For over thirty years, Dr. Walcott's name was associated with public health activities in this state, and his reports of the State Board of Health stand as models which were an inspiration for health organizations throughout the world.

This fund has been augmented by the Rockefeller Foundation gift of two million dollars. Dr. Walcott is senior member of the Harvard Corporation.

SURGICAL SECTION SUFFOLK DISTRICT MEDICAL SOCIETY.

A MEETING of unusual interest will be held February 23 at the Medical Library, at 8 P.M. Dr. Joseph C. Bloodgood, of Baltimore, will

speak on Border-Line Breast Tumors. There will be lantern-slide illustrations.

NOTE: The attention of the profession is called to the small attendance at previous meetings. At a recent meeting, Dr. Downs, of New York, had an audience of only forty. About a year ago, when Dr. Gibbon, of Philadelphia, spoke in Boston, only twenty-five attended. Boston should extend a courteous welcome to visiting men from other cities. Eminent men should have the encouragement of a large audience.—EDITOR.

MEDICAL NOTES.

FOR the ten months, January to October, inclusive, for 1921, Massachusetts had, for diphtheria, a case rate of 209 per 1,000 of the population.

PANEL FEES IN GREAT BRITAIN.—The Annual Panel Conference has agreed to accept a reduction from 11s. to 9s. 6d., on patriotic grounds.

Health Notes

SOME writers on health topics contend that meat is an indispensable food. While it has recognized value, it should also be accepted that milk is one of the richest foods in calcium, which is an essential bone-building nutrient. This is one of the reasons why milk is good for growing children. There is no better food for the growing child than good, fresh milk. It is cheaper than meat and with bread, butter, vegetables and fruit, makes the ideal diet for promoting physical health and vigor. Read what Dr. Stephen Smith says in his statement regarding milk.

KEEPING out fresh air and sunshine makes it easier for the undertaker to get in.

ACUTE respiratory diseases are more common in cold weather, due in all probability to two factors—poorer ventilation and lowered resistance. In warm weather, ventilation is the rule and out-door life promotes better health conditions. A well-functioning human being can maintain health in winter if judgment is exercised.

MILK is almost an essential food but we take it on faith because it looks white. There is no color index for infected milk. Pasteurization should be as universal as cooking beef.

PUBLIC HEALTH AND ANILIN DYES.

AT first thought, there seems to be no very close relation between public health and anilin

dyes. But not many people know that they are used in any way to protect the public health.

If there is diphtheria or tuberculosis in a family, the physician will endeavor to have cultures made and scientifically tested. When the bacteriologist in the public health laboratory receives a culture to test for diphtheria, or a specimen to examine for tuberculosis, he must put this material under the microscope in order to make a diagnosis. Now, bacteria are very small, colorless objects that look nearly all alike. In order to distinguish one from the other, the bacteriologist has to color them with certain stains. The stains he most frequently uses, known as fuchsin, methylene blue and gentian violet, are all anilin dyes. Without them he could not diagnose these samples for diphtheria and tuberculosis, and would be equally crippled in the examination of certain other material that comes in to him regularly. Furthermore, some of the anilin dyes are proving to be valuable medicines, as they are toxic to certain harmful bacteria.

Before the war, the bacteriologist always obtained his stains from Germany. When the war broke out, and the stock of these standardized and reliable German stains already in the country gradually became exhausted, the bacteriologist had a hard time finding what he needed for this important work. As a result, vital public health work suffered.

The first attempt to standardize these stains was made by the Society of American Bacteriologists. With the assistance of certain dealers in biological stains, they have been working on the matter for about a year and find that American manufacturers have already met the bacteriologist's needs in an admirable way. A little standardization is all that is now needed. The work that has been done in this way by the bacteriological society appeared so important that the National Research Council of Washington, D. C., offered to take it over so as to put it on a broader basis and place facilities at the disposal of the worker which were not available to the bacteriological society alone. Under this new arrangement the work has been organized on a broad basis, with the coöperation of the Department of Agriculture and several of the large national scientific societies, besides the Society of Bacteriologists. The hope of the committee in charge of this work is not only to standardize the stains and to secure American products as good as Germany can produce, but to secure the production of the biological stains in this country decidedly better than those available before the war.

The principle on which biological staining rests is that the protoplasm in cells of different tissues of the same animal or plant, or of different one-celled organisms, such as bacteria

and protozoa, reacts differently toward certain chemicals such as fuchsin, eosin, etc., so as to color the protoplasm differently. That is, protoplasm of different sorts takes up these dyes differently. These dyes thus bring out otherwise invisible qualities or structures in protoplasm (which is the fundamental organic substance of which all plants and animals are composed) in a somewhat similar way to that in which a developing wash brings out the light effects in a photographic plate or the lines in an otherwise invisible cipher writing. But the effect of these dyes upon protoplasm is so subtle that the slightest differences or irregularities in the composition of the dyes are likely to produce varying results in staining. It is, therefore, imperative to use perfectly uniform or standardized dyes for these purposes.

ELIMINATION OF CARBON MONOXIDE.

IN addition to studies on carbon monoxide, Dr. Yandell Henderson and Dr. W. Haggard, as consulting physiologists of the Bureau of Mines, in work done at the Laboratory of Applied Physiology at New Haven, Conn., on the problem of the elimination of carbon monoxide from the blood after a dangerous degree of asphyxia, have determined that ventilation of the lungs could be increased from 300 to 400 per cent. by adding 6 to 10 per cent. of carbon dioxide to pure oxygen. These investigators have also shown that the effects of carbon monoxide upon the heart are not specific, but are secondary to general asphyxia and a terminal failure of respiration. Material is now available for a report showing that symptoms and effects sometimes assigned to chronic carbon monoxide poisoning are in reality due to the effects of benzol and related substances in illuminating gas.

DON'T WAIT FOR DIPHTHERIA.

ALL things come to those who wait, but diphtheria may come without waiting. Therefore, be protected; get the child immunized and made proof against it for all time. Have the doctor do it and *do it now*.

Once in a while, as the Chicago Department of Health Bulletin says, a person is met who decries diphtheria antitoxin because it is a poison. The answer is that *diphtheria is the poison* and one that kills; that antitoxin is antipoison given to counteract and *cure one who is already poisoned*.

How many are lost through not having the

antitoxin given early and not in large enough doses! Early and large doses *have a reason*. When diphtheria sets in, *the toxins become fixed in the tissues* and are there converted into toxone. Antitoxin will *not correct if the toxin has become so fixed*. Therefore, *give early and quick*.—*Buffalo Sanitary Bulletin*.

PUBLIC HEALTH.

PUBLIC HEALTH is the science and the art of preventing disease, prolonging life and promoting physical health and efficiency through organized community efforts for the sanitation of the environment, the control of community infections, the education of the individual in principle of personal hygiene, the organization of medical and nursing service for the early diagnosis and preventive treatment of disease, and the development of the social machinery which will ensure to every individual in the community a standard of living adequate for the maintenance of health.—*C. E.-A. Winslow*.

PHYSICAL STANDARDS FOR CHILDREN.

THE U. S. Public Health Service has for a long time been occupied in various parts of the country in an investigation of physical standards for children.

Before relief can be fairly applied to children, it is necessary to know whether or not a particular child really needs it.

The common test of a child's health development, and about the only test that can readily be applied to children in mass, is to ascertain by some standard table of age-weights prepared for the purpose, whether or no they weigh as much as they should at their age. If the child is 10 per cent. or more under standard it is considered to be undernourished and is treated accordingly.

Some of the age-weight standards used in the United States are merely averages of all classes of children, including with the well, those who have hampering physical defects and those who are actually undernourished. They probably never did apply to all parts of the United States and quite possibly they no longer apply even to the particular part for which they were originally devised.

The population of the United States is very varied. It comprises lanky New England fishermen, short strong Italians, heavy, broad-shouldered Germans, small lithe Cockneys, and men of many other racial strains (not to mention a few ancestral Americans)—and blends of them all. Moreover, it lives under many different climatic conditions, wet or dry, cold or hot; and it lives on diets that in one sec-

tion depend largely on meat, in another on sea food, in a third on cornmeal and pork. All these conditions are more or less local and all tend to produce children whose physique conforms to a local and not to a general standard.

In view of this, the Public Health Service is making studies of the physical development of normal children in different states and is accumulating data that may serve as a basis for a possible (though unlikely) general standard or for a number of standards which may apply to more or less homogeneous parts of the country and may indicate, far more accurately than any existing standard, the physique of the normal child by which the condition and nutritive needs of the particular child may be judged.

These studies comprise the making of physical measurements of all children and of collating them according to race, sex, age, habitat (city or country), and ancestry (native born of American-born parents, native born of foreign-born parents, or foreign born of foreign-born parents). The data obtained should help to determine the influence of the different racial types and of immigration as a whole on the national physique.

One state where such an investigation is being made by the Public Health Service in co-operation with the State Board of Health, is Florida, where the population is largely homogeneous. A state-wide investigation, now in progress, concerning children's problems, particularly the effects of physical defects and septic mouth conditions on nutrition and development, is being supplemented by careful physical examinations and measurements in two counties of all school children; and from this, it is hoped that a standard for the state and the region may be framed.

Obituary.

JOSEPH MACDONALD, M.D.

DR. JOSEPH MACDONALD, managing editor and publisher of *The American Journal of Surgery*, and co-publisher of *The Medical Pickwick*, died suddenly, in his office, on January 7th, of cerebral hemorrhage, at the age of 51.

Dr. MacDonald was born in Branchville, Sussex County, New Jersey, in 1870. All his adult years were spent in medical journalism. He rose from office boy to manager in the office of the *International Journal of Surgery*. In 1905 (meanwhile having received his degree in medicine), he resigned from that position to establish the Surgery Publishing Co., and the *American Journal of Surgery* (formerly the *American Journal of Surgery and Gynecology*). From the outset he associated

with himself a New York surgeon, Dr. Walter M. Brickner, as the editor-in-chief, and the Journal early acquired esteem through the high standard of literary critique it has maintained. In 1915, in association with Dr. Sol. Martin, of St. Louis, Dr. MacDonald established the *Medical Pickwick*, a monthly magazine of medical wit, humor, verse, history and biography.

Dr. MacDonald was ex-president and, for many years, secretary of the American Medical Editors Association, an organization in which he was deeply interested and in whose affairs he was an active and earnest factor.

An officer in the Medical Reserve Corps of the U. S. Army since 1909, upon our entrance into the war he was commissioned a captain and, in December, 1917, a Major. Long before he was assigned to active duty, and continuously thereafter, he did great service to his country, by conducting in his own publications and in member journals of the American Medical Editors Association, a very vigorous propaganda to stimulate physicians throughout the country to enter the military service. With the approval and assistance of Surgeon-General Gorgas, he prepared circulars and editorials setting forth the medical-officer needs of the growing U. S. Army, and striking epigrams and exhortations, to stir the conscience of lag-gard colleagues. During 1918, he was on active duty as a member, and then chairman, of the Army Medical Examining Board of New Jersey, and made an excellent record in the number of physicians he inducted into the service. Later, he was appointed a member of the General Board at Washington.

Dr. MacDonald was very active in Masonry and was Past Grand Commander of Knights Templars of the State of New Jersey.

A few months after his discharge from the Army in 1919, Dr. MacDonald suffered a cerebral hemorrhage, causing a hemiplegia, from which he recovered largely by dint of plucky perseverance—a characteristic that dominated all his activities. He was a hard worker and extremely energetic. Indeed, the arterial hypertension from which he died was, largely, a sacrifice to his overzeal. He was always genial, frank and optimistic.

Dr. MacDonald had a very "magnetic" personality. He had a host of friends, within and without his profession, who will mourn his early death.

He is survived by a widow and sister, Mrs. W. C. McKeeby, wife of Dr. McKeeby of Syracuse, N. Y.

Miscellany.

THE MEDICAL SCHOOL OF COLUMBIA UNIVERSITY.

COLUMBIA UNIVERSITY and the Presbyterian Hospital entered into an alliance under an

agreement dated February 10, 1921, as shown in the following excerpts:

ARTICLE II.

The proposed new buildings of the Medical School of the University and the Hospital are to be built upon an agreed site. There shall be a division of the site between the University and the Hospital, and each is to acquire the portion assigned to it in such division at its own cost and expense. The portion assigned to the University is to be conveyed to, and be owned and maintained by, the Hospital.

The parties are within four months from the time this agreement goes into effect to proceed with the preparation of plans for the new buildings and the construction of the buildings in accordance with the plans adopted and continue such construction with due diligence to the completion of the buildings.

ARTICLE III.

The professional staffs of the Hospital are to consist of professors and other members of the staff of the Medical School of the University who are to be appointed by the Hospital on the nomination of the University.

ARTICLE IV.

In order that the permanent alliance of the University and the Hospital shall be maintained and effectively administered, an Administrative Board is to be appointed to consist of three Managers of the Hospital, and three Trustees of the University, with the Dean of the Medical School acting in an advisory capacity without voting power. The first Board shall consist of Edward S. Harkness, Henry W. DeForest, and William Sloane, representing the Hospital, and John G. Milburn, Walter B. James, and William Barclay Parsons, representing the University. In case of a vacancy by death, resignation or other cause, it is to be filled by the body that made the appointment; but the appointments made by the Hospital shall be subject to the approval of the University and those made by the University shall be subject to the approval of the Hospital.

ARTICLE V.

The powers of the Administrative Board are to be as follows:

1. A list of the members of the professional staffs of the University who are nominated by the University to constitute the professional staffs of the Hospital is to be submitted annually by the University to the Administrative Board for its approval before its presentation to the Hospital for its action under Article III.

2. To consider any objection made to any member of the professional staffs of the Hos-

pital and to report thereon with their recommendations to the University and the Hospital.

3. To examine and consider plans for the new Hospital and new Medical School buildings and to report thereon to the University and the Hospital with their recommendations.

4. Subject to the approval of the Trustees of the University and the Board of Managers of the Hospital, to determine from time to time the facilities and equipment for instruction and research in the Hospital; to apportion between the University and the Hospital any joint or common outlay or expenditure for construction, equipment or operation that may be found necessary by the mutual action of the University and the Hospital; and to exercise such other powers as may be conferred upon it from time to time by the authority of the Trustees of the University and the Board of Managers of the Hospital acting concurrently.

The agreement went into effect upon the raising of a fund of not less than \$3,000,000.

The Rockefeller Foundation and the General Education Board have each pledged one million dollars. The Carnegie Corporation also pledged one million dollars, so that the required funds are available. Mrs. Stephen V. Harkness has provided land worth two million dollars for the Hospital and Medical School buildings. Mr. Edward S. Harkness has agreed to contribute to the University for the Medical School, one million dollars, and there is also available the legacy of the late Joseph R. DeLamar, of five and one-half million dollars and the income of the Harkness Fund of one and one-half million dollars, held by the Presbyterian Hospital for teaching and research in medicine.

The Administrative Board set up by the agreement lost no time in beginning work. Recently built hospitals and medical schools in this and in other lands have been inspected and the plans for the new undertaking are already under way. Three years will doubtless be needed to complete the new buildings for hospital and medical school, and to effect the transfer of both from their present sites to their new and permanent home.

CHIROPRACTORS IN CALIFORNIA.

A HARD fight is on in California for recognition of chiropractics. Last November, enough petitions were signed authorizing the placing of (in the 1922 ballot) a measure which, if adopted, will create a State Board of Chiropractic Examiners.

These signatures were obtained very largely by women and girls, who petitioned passers-by on the streets.

Chiropractors should never be favored by legislative class distinction. There should be one standard for all practitioners of medicine. Massachusetts will be assailed in turn.

Notice the articles by Severance Johnson on "Chiro-Quack-Tic," running in *Leslie's Weekly*.

RECEPTION TO PROFESSOR SCHLOSS.

ON Friday, January 27, a reception was tendered to Professor and Mrs. Oscar M. Schloss, at the Infants' Hospital. Many prominent members of the faculties of the medical schools, staffs of hospitals and boards connected with public health activities attended.

WHISKEY PRESCRIPTIONS.

JAMES A. STONE, Prohibition Director for the State of Wisconsin, is reported by the *Milwaukee Journal* to have stated that physicians in that State issued 720,000 prescriptions for whiskey in 1921.

Under the A.M.A. Questionnaire, it was reported that 359 voted against whiskey as a necessary therapeutic agent, and 342 in favor. There are about 2700 physicians in Wisconsin and if this vote is representative of the other half (for the questionnaire was sent to 1194, and 707 were returned), the believers in whiskey must have been very busy. Assuming that there were 1300 who prescribed whiskey at the usual fee for a prescription, the revenue must have kept the wolf from the door. It would be interesting to know the conditions for which the whiskey was used.

ORDINARY FACTS OF EXTRAORDINARY INTEREST.

WITHIN a period of ten years, four years have been added to male policy holders in one insurance company. If tuberculosis could be eliminated from America, there would be added three years to the average life of the population.

The elimination of other preventable diseases indicates that life expectancy could be extended from fifty-one to an average maximum of seventy years.

The economic wealth of this country is increasing at the rate of one hundred dollars per person per annum. Keep the people alive and the country will add to its wealth.

The average productive male member of our population is worth five hundred dollars per year.

Nine million men were killed in the World War. Expressed in dollars, one hundred and fifty-eight billion dollars worth of human lives were destroyed. Add to this the expense of the disabled, and the mind is confused. We are obliged to depend on politicians to prevent this wastage in the future. If the politicians were to be the first to be drafted, wars would be infrequent.

The money loss due to deaths from influenza in the last great epidemic is estimated at one hundred and seventy million dollars.

If progress continues in life-saving public health measures, there will be one hundred and

fifty-three thousand more lives saved in 1921 over the loss in 1920.

The deaths from the following diseases seem to show lowered rate: Influenza, pneumonia (all forms), tuberculosis (all forms), other respiratory diseases, Bright's disease, puerperal state, measles, whooping cough, meningitis (all forms), diarrhoea and enteritis, typhoid fever, cerebral hemorrhage, organic diseases of heart.

Causes of death showing an increase in the death rate: Cancer, suicides, homicides, automobile accidents and injuries, scarlet fever, diphtheria.

AN ACTIVE CAMPAIGN TO INCREASE MEMBERSHIP.

THE American Association of Industrial Physicians and Surgeons has assumed the task of doubling its membership, the minimum objective is for each member to secure one recruit. Every member of the Association, being in the active practice of industrial medicine, should be full enough of his mission to render this disinterested service. More than twenty-five hundred physicians in the United States are specializing in industrial medicine. The man who would credit the organization or whose work is a credit to the cause should identify himself with the American Association. It is desired that the men whose work renders them eligible, will make early application for membership.—*The Nation's Health*.

U. S. LIFE TABLES.

THE Department of Commerce, through the Bureau of the Census, announces the second official publication on life tables.

It is shown that mortality at practically all ages is higher among men than among women. In particular, it appears that the most favorable mortality in this country is found among women living in the rural districts. The rural classes, regardless of sex, enjoy a much lower mortality for nearly the entire range of life than those living in the cities. While the expectation of life, both among men and women, in most classes, has steadily increased, there is no indication of any definite lengthening of the span of life. In other words, while almost all classes of persons are living to an older average age, the limiting age of human life does not seem to have advanced.

In 1901 the expectation of life among white females at birth was about three years more than among white males, and in 1910 the excess in favor of the females had increased to almost three and one-half years. There seems to have been a general improvement for all classes for the ages up to about age 40 for men and age 50 for women, except for the

negro population. Above these ages no improvement is shown, and in some cases the mortality at the older ages in 1910 was actually less favorable than it was in 1901.

An examination of the infant mortality tables indicates a decided improvement in the infant mortality rate in most classes of the population, between 1901 and 1910. The expectation of life of children born in 1910 also shows a considerable improvement over the expectation of life of children born in 1890 and 1901 in practically all classes of the population. The infant mortality in the rural districts was considerably lower than that in the urban districts, both in 1901 and 1910, but the difference in favor of the rural districts was not as great in 1910 as it was in 1901, indicating that the efforts to improve infant mortality conditions in our cities are undoubtedly meeting with success.

IMPORTANT HEARINGS.

House 181. Acceptance of the Sheppard-Towner Act.

Senate 259. The Spencer Maternity Aid Bill.

February 20, 10.30 a.m. Committee on Public Health and Social Welfare, sitting jointly.

February 16, 10.30 a.m. Joint Judiciary Committee. Senate 215. That cities and towns be made liable for damages for injuries caused by compulsory vaccination.

Committee on Public Health, March 6, 10.30 a.m. House 631. To regulate the practice of chiropractic and to provide for the examination and license of chiropractors and the appointment and maintenance of a Board of Examiners.

Committee on Public Health, March 1, 10.30 a.m. Senate 292. To appoint doctors in small towns. House 955. Bill amending the law relating to the registration of physicians. This is the bill advocated by the Committee on Medical Education, providing for two years of college work before the study of medicine is undertaken, and for a year's internship.

House 744. Directing the Department of Public Health to prepare and distribute anti-rabietic serum.

March 13, 10.30 a.m. Bill relative to the physical examination of pupils in the public schools. This bill substitutes "may" for "shall" in the present law.

EXCERPTS FROM "THE MEDICAL PRESS AND CIRCULAR."

THE epidemic of typhus fever in Moscow, to which Dr. Reginald Farrar, as noted in last week's issue of *The Medical Press and Circular*, fell a victim, is spreading unchecked.

In order to keep the supply of probationer nurses up to the minimum demanded for the ward requirements of the London Hospital, 208 girls must go through the preliminary course annually. Last year, no more than 153 offered themselves.

It needs to be widely known that nursing is not an ill-paid profession, that the hours of duty are fixed, and the prospects good. At the London Hospital the scale runs thus:

For regular probationers, £30 for the first year, £35 the second year, £40 the third year.

Staff nurses in the hospital are paid at the rate of £60.

Sisters are paid £90 the first year, £100 the second year, rising to a maximum of £130 by £10 per annum.

Private nurses are paid £60 the first year, £70 the second year, £80 the third year, rising to a maximum of £90.

PROPAGANDA FOR REFORM.

Heliotherapy and Rickets. Evidence for the value of heliotherapy in rickets was presented years ago. This value has recently been verified by experiments on animals rendered demonstrably rachitic through dietary errors. When rats have an abundance of sunlight, they remain healthy under regimens which are sufficiently deficient in phosphorus to induce rickets in animals kept in subdued light. It has been shown that the changes produced by sunlight on the skeleton do not differ in any important respect from the changes produced when animals are fed cod liver oil. Again, sun treatment of infants suffering from rickets, not only brings about a cure of the rachitic lesions, but in so doing occasions chemical changes in the blood similar to those noted when the cure is effected by cod liver oil. Heliotherapy has thus, in one case at least, been put upon the scientific basis of demonstrable chemical changes in the organism affected (*Jour. A. M. A.*, Jan. 21, 1922, p. 195).

Antidote for Phenol Poisoning. Sodium sulphate in strong solution is one of the best-known antidotes for phenol poisoning. The action is not a chemical one. Alcohol is not an antidote for phenol poisoning. Experiments carried out in the U. S. Hygienic Laboratory showed that the toxicity of phenol was increased by alcohol. Alcohol is applied to the appendix stump after operation in the belief that it will neutralize the action of the phenol and thus prevent extensive sloughing of the tissues; but no doubt the action of the alcohol is simply that of diluting and washing away the phenol (*Jour. A. M. A.*, Jan. 28, 1922, p. 299).

PURPOSE AND SCOPE.

THIS is the second official publication issued by the Bureau of the Census on life tables derived from statistics of births, deaths, and populations. It was prepared by James W. Glover, expert special agent of the Bureau of the Census and professor of mathematics and insurance in the University of Michigan. It is

intended to be of service primarily as an authoritative source of information to the public. Students of vital statistics, physicians, lawyers, sanitary engineers, sociologists, actuaries, mathematicians, statisticians, public health officials, and others interested in the improvement of public health, will find it particularly useful.

Correspondence.

ON THE PRACTICE OF MEDICINE.

Mr. Editor:

Even in the interests of clear thinking, let us hope that the *obiter dicta* of the present attorney-general of Massachusetts, as recorded in the JOURNAL's leading editorial of January 19, 1922, will not be allowed to go unchallenged. To assume that the man who simply gives highly trained technical advice to a practitioner of medicine is himself thereby engaged in the practice of medicine is to badly confuse the meaning of the phrase, "the practice of medicine."

If "medicine relates to the prevention, cure and alleviation of disease, the repair of injury, or treatment of abnormal or unusual states of the body and their restoration to a healthful condition," then it logically follows that the "practice of medicine" is the application of this relationship. The recipient of that application must be the one in need, necessarily; while the agent through whom the application is made is the attending physician. That the attending physician then seeks the advice of one who is "learned and skilled" (whether in pathology or in some other branch of medical science) does not result thereby in the latter becoming perforce a "practitioner of medicine." I presume no one would contend that Professor Folin, for example, *ought* to be licensed as a practitioner solely because his advice relating to some phase of blood chemistry proved exceedingly valuable. But the same logic would hold concerning any advisory technician whether chemist, pathologist, toxicologist, medico-legal attorney, truss expert, orthopedic mechanic, or any "learned or skilled" individual consulted concerning some separate phase of the diagnosis. The distinction might well be drawn at the point of relative contact, to wit,—the practitioner studies the patient; the technician studies, not the patient, but such data as may be submitted by the practitioner; the physician studies the living tissue *en masse* and directly, whereas the technician studies sundry data derived secondarily. Surely, one who studies this disjoint data, only, cannot logically be said to be practising medicine, in any canonical sense.

Why not submit the question to the faculty of Harvard Law School, and so obtain a critical and analytical, but non-political, opinion?

Yours fraternally,

A. D. BUSH.

[NOTE. In Massachusetts, Boards and Commissions act in conformity with opinions of the Attorney-General until the laws have been interpreted by the courts. If any one sees fit to contend the opinion of the Attorney-General, the question could be brought before the court.—EDITOR.]

AN APPRECIATION.

Greenfield, Mass., January 24, 1922.

Mr. Editor:

Will you permit me to express, through the pages of the JOURNAL, my appreciation of certain changes in its conduct since it has become the official organ of the Massachusetts Medical Society?

The change that has appealed to me particularly is

the insertion of the many letters—controversial, hypercritical, and constructive—which have been appearing from week to week, and also your patience, good temper and courteous replies to many of these.

I know that the tone and contents of some of these letters must have hurt, because having worked on committees of the parent body and proven the inertia of so many of the rank and file, I know how easy criticism comes and how hard it is to get the necessary work properly subdivided. Nevertheless the appearance of these letters is a most hopeful sign of progress in the Society, for discontent is preferable to indifference.

A review of many of these letters indicates that the dissatisfaction is general, rather than specific, but the impression conveyed is that the Society is exclusive; is conducted like a close corporation; that it fails to so organize its members as to make opposition to encroachments from without ineffective; and that something should be done to revitalize it to the end that membership will mean more than just paying dues, receiving a JOURNAL and expressing periodical regrets that something different was not done.

The belief that the Massachusetts Medical Society is a Boston affair is of course not a new one, and though a ten-year tabulation of statistics based on the residence of the active workers among its officers, committees and writers in the JOURNAL might show a majority in the eastern part of the state, yet many of us know that this apparent centralization of activity is not from a desire to control, but because Boston is the place of headquarters; that scientific progress is more active and that proportionately there are more willing workers in urban than in rural communities.

Several years ago, during a three-year membership on the Scientific Program Committee, I endeavored to overcome this locality prejudice by getting a state-wide representation on the program of the annual meetings, but though I managed to accomplish a part of my plan, it was done only after overcoming a great deal of unwillingness of many members to avail themselves of the opportunity to do active work.

The same inertia was met later when, as a member on the Committee on Legislation, members were asked to voice their opposition to pending legislation, not by taking their time and means to go to Boston, but by the easier way of personal interviews with their local Senators and Representatives. The Optometry bill; the legislation permitting greater activities by the Osteopath and similar sects and the failure to get needed legislation to raise the standard of Medical Education are due, not to a lack of machinery in our Society for organized opposition, or incapacity of its committees on legislation, but because the mass of the units of the Society is indifferent and unwilling to step out of the routine rut of daily practice. If any reader of this is skeptical of the truth of this statement, let him get on one of these committees and investigate its activities from the inside.

Notwithstanding this experience it is possible that changes might be made, either in personnel or policies, that would arouse and maintain a more personal interest among the rank and file; such for example, a more careful selection by the District Societies of their Council members; a wider geographical distribution on the Society Committees, the holding of the annual meetings in Boston, Worcester and Springfield in successive years and also having at least a few of the meetings of the Council held in the two last named cities during the course of each year.

In addition, it might be well to ask ourselves whether the character of our annual meetings is not becoming obsolete? It is possible that the group educational plan, with intensive study for two or three days, would provide that annual post-graduate brushing up, for which so many of us crave, and

to which many would look forward and make greater efforts to reach than they would to a program of stereotyped papers or crowded clinics, and which really centers around a "big feed" known as the Annual Dinner.

A few other possible changes are in mind, but this letter has grown way beyond its original intent, which was to urge you to get all the complaints from the individual members that you can. Print all letters, if they will pass the postal regulations erected to maintain decency; give us all the information you possess that will aid in the removal of misunderstandings and clarify disputed points, and pass along through the proper channels any constructive suggestions that will make our State Society, not a vague, intangible, abstract thing that costs ten dollars per year per member, but a clearing house through which vital ideas may flow and be transmuted into concrete accomplishments that will not only benefit each individual member, but through him will reach the mass of the people, of whose physical health we are the guardians.

B. P. CROFT.

[NOTE. The JOURNAL is indebted to the writer of the above for his suggestions, criticisms and evidence of interest. Every dignified contribution is welcome—and the JOURNAL desires frank discussion of all problems.—EDITOR.]

A NEW MEDICAL SOCIETY.

Ware, Mass., January 30, 1922.

Mr. Editor:

And so we are going about in these days to form a new society to look out for the material interests of the medical profession. Not a bad idea. Let us all join, and let us have a few slogans:

"We insist upon individual liberty."

"We will fight for our rights."

"Down with the State Department of Health."

"Down with the bloated city specialist of inherited or married wealth, who thinks he knows more about his specialty than we do."

"Down with the Red Cross nurse."

"Down with the industrial nurse."

"Down with the school nurse."

"Down with all legislation which favors any of these latter things."

"No one else shall do aught for the sick and afflicted, and we demand more pay for our services."

Let us keep shouting these into the ears of the people until they sit up and take notice. Then, surely, the individual physician will come into his own, financially, and be most highly respected in the community.

And there is another ancient slogan of the medical profession: "Service to humanity"; a little outworn and old-fashioned, as some believe, but it has never been lost, and I even venture to suggest that it serve as a motto in the meeting-place of the new society. Surely it would need but little refurbishing to shine with its old-time lustre. It is true the medical profession can by no means claim a monopoly of this motto, but if it be adopted by the new society, and its members look well to it that no organization or group of whatever calling or profession has a better right to the title, then whatever else they may be pleased to consider, they surely will not go far wrong in their deliberations. Then, indeed, will the new society be of signal benefit to the medical profession.

And if the time comes when this motto would seem inappropriate, then, by all means let us take it down and substitute one more fitting and up-to-date. How would this strike you? "Every man for himself and the public be damned!"

Very respectfully,

MAURICE W. PEARSON, M.D.

THE ST. LOUIS MEETING OF THE AMERICAN MEDICAL ASSOCIATION.

Mr. Editor:

For the convenience of many of your readers who will plan to attend the meeting of the American Medical Association, which is to be held in our city next May, will you kindly publish the following in your esteemed JOURNAL.

The May meeting of the American Medical Association at St. Louis, promises well toward being the largest in attendance of any of the Association's sessions. Since the publication of the hotels in the journal of the Association in December, inquiries and reservations are being made daily. The hotels

and the Conventions Bureau are aiding the Committee in a most satisfactory and helpful way to see that the Fellows are comfortably housed and accommodated. The American Medical Association meetings tax all cities entertaining them to the limit of hotel capacity. Whenever possible, a good Fellow should double up so that no one is left without comfortable lodging.

Reservations should be made by communicating direct with the hotels. If satisfactory arrangements cannot be made in this way, write to Doctor Louis H. Behrens, Chairman Committee on Hotels, 3525 Pine Street, St. Louis, Mo.

Very truly yours,
THOMAS A. HOPKINS, M.D.,
Chairman Committee on Printing.

ST LOUIS' LEADING HOTELS (ALL EUROPEAN PLAN), THEIR LOCATION AND RATES

Hotel, with Number of Rooms	Street Address	Without Bath		With Bath	
		Single	Double	Single	Double
American, 275	7th and Market Sts.....	.....	.....	\$2.50-3.00	\$4.00- 6.00
<i>Diseases of Children</i>					
American Annex, 225	6th and Market Sts.....	.....	.....	2.00-3.00	3.00- 6.00
<i>Pathology and Physiology</i>					
<i>Pharmacology and Therapeutics</i>					
Beers, 114	Grand and Olive Sts.....	\$1.50	\$2.50	2.00-2.50	3.00- 3.50
Brevort, 50	4th and Pine Sts.....	.....	.....	2.00	3.00
Cabanne, 43	5345 Cabanne St.....	.....	.....	12.00-37.50*	
Claridge, 350	18th and Locust Sts.....	.....	.....	2.50-4.00	4.00-10.00
<i>Obstetrics, Gynecology and</i>					
<i>Abdominal Surgery</i>					
Hamilton, 160	Hamilton and Maple Sts.....	.....	.....	2.00-2.50	3.50- 4.00
Jefferson, 400	12th and Locust Sts.....	2.50-3.00	4.00	3.00-8.00	6.00-10.00
<i>Surgery, General and Abdominal</i>					
<i>Orthopedic Surgery</i>					
Laclede Hotel, 265	6th and Chestnut Sts.....	1.50-2.00	2.50-3.00	2.50-3.00	3.50- 4.00
Majestic, 200	11th and Pine Sts.....	.....	.....	2.50-3.00	3.50- 4.00
<i>Dermatology and Syphilology</i>					
<i>Nervous and Mental Diseases</i>					
Marion Roe, 200	Broadway and Pine Sts.....	.....	.....	1.50-2.00	3.00- 4.00
Marquette, 400	18th and Washington Sts.....	2.00-2.50	3.00-3.50	3.00-3.50	4.00- 6.00
<i>Laryngology, Otology and</i>					
<i>Rhinology</i>					
Maryland, 240	9th and Pine Sts.....	2.00	3.00	2.00-3.50	3.00- 5.00
<i>Gastro-Enterology and Proctology</i>					
<i>Urology</i>					
Planters, 400	4th and Pine Sts.....	2.00-2.50	3.00-3.50	2.50-5.00	4.00- 8.00
<i>Ophthalmology</i>					
Plaza, 200	3300 Olive St.....	.....	.....	2.00-2.50	3.50- 5.00
Roselle, 100	4137 Lindell Blvd.....	.....	.....	1.50-2.50	2.50- 3.50
St. Francis, 120	6th and Chestnut Sts.....	1.50-2.00	2.50-3.00	3.00-4.00	4.00- 5.00
Statler, 650	9th and Washington Sts.....	.....	.....	3.00-7.00	5.50- 9.50
<i>Practice of Medicine</i>					
Stratford, 100	8th and Pine Sts.....	1.50	2.50	2.50	3.50
Terminal, 100	Union Station	1.50-2.00	3.00	3.00-3.50	5.00
Warwick, 200	15th and Locust Sts.....	.....	.....	2.00-4.00	4.00- 6.00
<i>Stomatology</i>					
<i>Preventive Medicine and Public</i>					
<i>Health</i>					
Westgate, 125	Kingshighway and Delmar Sts..	2.00	2.50	3.00	3.50

* Weekly rates only.

BOOKS RECEIVED FOR REVIEW.

THE JOURNAL acknowledges the receipt of the following books for review:

The Psychiatric Milestone. Society of the New York Hospital. 220 pp. Privately printed.

Lessons on Tuberculosis and Consumption. By Charles E. Atkinson. Published by Funk and Wagnalls Co. 470 pp. Price \$2.50.

Arterial Sclerosis. By Louis Tangères Bishop. Oxford Medical Publications. 383 pp. Price \$4.25.

Early Symptoms and Treatment of Circulatory Disease. By R. M. Wilson. Oxford Medical Publications. 245 pp. Price \$4.75.

Medical Electricity for Students. By A. R. I. Browne. Oxford Medical Publications. 231 pp. Price \$4.25.

Hygiene of Women and Children. By Janet E. Lane-Clapton. Oxford Medical Publications. 354 pp. Price \$5.00.

Bowel Diseases in the Tropics. By Sir Leonard Rogers. Oxford Medical Publications. 475 pp. Price \$9.00.

The Eighteenth Amendment and the Part Played by Organized Medicine. By Charles Taber Stout. Published by Mitchell Kennerley, New York. 216 pp. Price \$1.50.

Transactions of the 27th Annual Meeting of the American Laryngological, Rhinological and Otological Society, Inc. Privately published.

"The Blood Supply to the Heart," by Louis Gross. Published by Paul B. Hoeber, New York. 171 pp. Price \$5.

"Episcopal Hospital Reports," Vol. V. Edited by Astley P. C. Ashhurst. Published by Wm. J. Doran Press, Phila. 506 pp.

"Gynecology-Obstetrics" (Practical Medicine Series, Vol. V, 1921), by Emilius C. Dudley and Joseph B. De Lee. Published by The Year Book Publishers, Chicago, Ill. 384 pp. Price \$1.75.

A COURSE IN MEDICINE AND PATHOLOGY AT MASSACHUSETTS GENERAL HOSPITAL.

A COURSE in "Medicine and Pathology" will be given in the Amphitheatre of the Pathological Laboratory by Dr. William H. Smith, Visiting Physician of the Massachusetts General Hospital, and Dr. Oscar Richardson, Assistant Pathologist of the Massachusetts General Hospital.

The complete clinical records of cases coming to autopsy will be presented by Dr. Smith, who will discuss the differential diagnosis. The pathological findings will then be stated, the organs demonstrated and the pathology of the cases discussed by Dr. Richardson. This will be followed by a general discussion of the cases, viewed in the light of the completed records, and attention will be called to the newer diagnostic methods and to the broad principles of treatment involved. Microscopical preparations and lantern slides will be used when necessary.

There will be nine exercises, on Wednesdays, in the months of March and April, between 3.15 and 5.15 P.M.

The course is open to graduates in medicine and medical students of the third and fourth years, subject to their acceptance by the hospital.

Women admitted.

Given in connection with the Harvard Graduate School of Medicine.

A fee of \$5.00 will be charged for the course. Application should be made to

FREDERIC A. WASHBURN, M.D., *Director*,
Massachusetts General Hospital, Boston, Mass.

THE BOSTON TUBERCULOSIS ASSOCIATION is planning an Institute for Nurses on the same plan as the recent one by this Association, for Physicians. It is intended to give to the nurses the latest facts with reference to the care of patients with tuberculosis, and speakers from outside the State will supplement home talent. The Institute will be in the hands of a committee including Miss Zepha M. Gardner, Superintendent of Nurses, Boston Consumptives' Hospital, Out-Patient Department; Professor Anne Strong of Simmons College, and Miss Bernice W. Billings, Executive Secretary of the Association. A location central in Boston will be selected for the Institute, the date will be Tuesday, March 21, subject to possible change, and the sessions will be in order both morning and afternoon 7-3t

RESEARCH CLUB OF HARVARD MEDICAL SCHOOL.—The meeting to be held in the Amphitheatre of Building C, on Friday, February 17th, at 12.30 o'clock, will be addressed by Professor Joseph Barcroft, F. R. S., Fellow, Kings College, Cambridge, on "The Raison d'Etre of the Red Corpuscle."

Kindly note the change from Building A to Building C Amphitheatre. This change is for the 17th only.

A CLINICAL MEETING will be held in the Auditorium of the Beth Israel Hospital on Thursday evening, February 23, at 8.15 p.m. Program: "Traumatic Surgery and Infections of the Hand." Doctors Torr W. Harner, Arthur W. Allen, Carl Bearse. Refreshments served. Physicians invited.

DEPARTMENT OF PUBLIC HEALTH.

In reply to your letter of recent date, I am enclosing data available in cases of dog-bite requiring anti-rabic treatment. You will note an increase of 100 per cent. in number of persons bitten last year, with three deaths.

The Division of Animal Industry are taking active steps to have the local authorities quarantine dogs where cases have been found. It may be said that

there were three distinct foci for the past year—metropolitan Boston, 26 cases; Lowell and adjacent territory, 44 cases; Fall River, 16 cases. The remaining cases were scattered throughout the eastern part of the State.

The influenza situation, at this date, does not show any evidence of true epidemic type. All cases reported are mild in character, very few deaths, and apparently little pneumonia of the hemolytic streptococci infection.

I have no way of telling whether or not the situation will change in the next few days, but feel now that we are not to experience an epidemic of the virulent type present in 1918.

Very truly yours,

EUGENE R. KELLEY,
Commissioner of Public Health.

CASES OF DOG-BITE REQUIRING ANTI-RABIC TREATMENT REPORTED TO THE MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

	1917	1918	1919	1920	1921	1922
January	4	2	2	9	2	17
February	3	—	—	8	6	3*
March	4	—	—	—	6	—
April	3	1	6	8	6	—
May	7	6	3	12	9	—
June	9	2	6	11	11	—
July	9	1	6	3	1	—
August	3	2	2	6	18	—
September	2	2	3	7	15	—
October	9	2	2	1	16	—
November	4	2	8	1	11	—
December	3	—	6	1	19	—
Totals	60	20	54	67	120	—

* Figures Feb. 1-3.

CASES OF INFLUENZA AND LOBAR PNEUMONIA REPORTED TO THE DEPARTMENT OF PUBLIC HEALTH.

Influenza.			Lobar Pneumonia.		
	1921	1922		1921	1922
Total Jan. ..	158	135	Total Jan. ..	587	571
Total Feb. ..	134	1082	Total Feb. ..	466	239
January 3 ..	0 cases		January 3 ..	12 cases	
4 ..	3		4 ..	32	
5 ..	1		5 ..	16	
6 ..	2		6 ..	35	
7 ..	1		7 ..	12	
8 ..	2		8 ..	17	
9 ..	4		9 ..	31	
10 ..	4		10 ..	19	
11 ..	4		11 ..	27	
12 ..	2		12 ..	27	
13 ..	0		13 ..	26	
14 ..	0		14 ..	22	
15 ..	3		15 ..	23	
16 ..	2		16 ..	16	
17 ..	2		17 ..	23	
18 ..	2		18 ..	28	
19 ..	4		19 ..	22	
20 ..	2		20 ..	24	
21 ..	5		21 ..	22	
22 ..	2		22 ..	35	
23 ..	17		23 ..	21	
24 ..	6		24 ..	9	
25 ..	13		25 ..	23	
26 ..	10		26 ..	19	
27 ..	18		27 ..	27	
28 ..	15		28 ..	43	
29 ..	17		29 ..	10	
30 ..			30 ..	30	
31 ..			31 ..	40	
February 1 ..	43 cases		February 1 ..	44	
2 ..	47		2 ..	44	
3 ..	87		3 ..	44	
4 ..	189		4 ..	43	
5 ..	169				
6 ..	316				
7 ..	231				
8 ..					

The Boston Medical and Surgical Journal

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Original Article.

TYPHUS FEVER AT THE BOSTON CITY HOSPITAL.

BY GEORGE C. SHATTUCK, M.D., BOSTON.

[From the Service for Tropical Diseases at the Boston City Hospital.]

THE work to be described was begun at a time when cases of typhus were being found among immigrants recently arrived in New York, and when it was feared that a serious outbreak of typhus might occur in Boston.

The objects were to learn the number of cases of typhus recorded at the City Hospital in recent years, to ascertain whether cases of typhus had been overlooked, and to determine the principal diagnostic difficulties relating to typhus in this locality. A study of typhus at the Massachusetts General Hospital was made along somewhat different lines by Dr. Roger I. Lee,¹ in 1913.

PLAN OF WORK.

The plan of work consisted of carefully searching the case records filed under the diagnoses of typhoid fever, suspected typhoid, paratyphoid, influenza, febricula, and undiagnosed infections, for the ten-year period from the middle of 1921 back through 1911. In the records from and including the years 1916 through 1911, cases of febricula were looked up, and the diagnoses of influenza were exam-

ined from 1921 through 1916. Information about pneumonia and allied conditions was obtained by looking over about two-thirds of the cases diagnosed as pneumonia between the years of 1916 and 1910 and by examining all the records of the special service for pneumonia inaugurated in 1919. These records include diagnoses of influenza, bronchitis, coryza, pleurisy, empyema, and acute alcoholism with pneumonia.

The total number of case records examined was probably not less than 7,000. The preliminary work was done by my secretary, who was instructed to look for certain well-known features of typhus. I subsequently scrutinized the material selected by her.

The most interesting case histories were divided into the four following groups:

Group I.—Typhus fever: four cases (Nos. 1 to 4, inclusive).

Group II.—Probable typhus: five cases (Nos. 5 to 9, inclusive).

Group III.—Perhaps typhus: five cases (Nos. 10 to 14, inclusive).

Group IV.—Cases, certain features of which suggest typhus: an indefinite number.

It is noteworthy that among the fourteen cases of Groups I, II, and III, only three were females. The ages varied from 18 to 40 years. The records of patients less than 18 years old were not examined because of the greater difficulty of diagnosing typhus fever in the young. All but one of the patients were foreign-born. Ten of them had come from Russia, and of these

one had been in the United States only ten days, and another three weeks. All of these patients recovered.

Hospital diagnoses in Groups II and III (cases 5 to 14, inclusive):

DIAGNOSIS	NUMBER OF CASES
Fever of unknown cause or febricula	5
(?) Typhoid fever and dermatitis medicamentosa	1
Typhoid fever	2
Pneumonia (probably lobar)	2

Case reports are appended.

The hospital diagnoses in Group IV include all of those above mentioned and the following other diagnoses:

DIAGNOSIS	NUMBER OF CASES
Influenza	a number of cases
Acute alcoholism with (?) typhoid	1
Bronchopneumonia with (?) measles	1
Pleurisy with bronchitis	1

It was a surprise to find in the records no case of paratyphoid or of cerebrospinal meningitis in which the diagnosis of typhus seemed a possibility.

DISCUSSION OF DIAGNOSIS.

So much has been written on the differential diagnosis of typhus that only those diseases need be discussed here which are mentioned above. Recent detailed information on the clinical picture and concerning differential diagnosis can be obtained from other sources (Daniélopou,² Shattuck³).

Fever of unknown cause and febricula have been thrown together because either designation indicates that an etiological diagnosis was not made. Five cases (No. 5 and No. 6 in Group II, and No. 10, No. 11 and No. 12, in Group III) were so classified. Two other cases might be included. One of these (No. 7, Group II) was diagnosed, (?) typhoid and dermatitis medicamentosa. In the second (No. 14, Group III), the diagnosis of pneumonia was made not from the physical signs, but from the chart, which showed an abrupt fall of temperature.

It seems probable that typhus was not thought of as a possibility in these cases and that, had it been considered, some or all of them might have been so diagnosed.

Typhoid Fever. The positive Widal reaction, doubtless, was an obstacle in the two cases diagnosed typhoid (No. 8, Group II, and No. 13, Group III). At that time it was justifiable to consider a positive Widal reaction in the dilution of 1:50 in an un inoculated person as presumptive evidence for typhoid, but numerous observers have since shown that the Widal reaction may be positive in typhus in the same dilutions in which it is commonly positive in typhoid (Wilson⁴). Moreover, it is well known

that cases of typhoid occur in which there is an abundant eruption simulating that of typhus. In both cases above mentioned, the white count was increased—another point against typhoid.

The rash of typhoid generally first appears about the seventh day, sometimes later, whereas that of typhus is to be expected on or about the fifth day.

In Case No. 7, Group II, the Widal test was negative, and the diagnosis was (?) typhoid, dermatitis medicamentosa. A note says, "Unable as yet to find out what drug caused the erythema."

Paratyphoid Fever. Within a short time, at the Boston City Hospital, a case of undiagnosed fever was seen in which there was an eruption suggestive of typhus. Cultural methods and Widal tests with typhoid bacilli and paratyphoid A and B gave negative results. The eruption was in part petechial, came late, and fresh spots apparently developed on succeeding days. The onset, the duration of the fever, and the rapid defervescence suggested typhus. It seems not impossible that the case may have belonged to the paratyphoid group. At any rate, paratyphoid is a disease which may have these characteristics.

Another case having a profuse rose-red eruption without petechial elements, and sparing the face, was believed to be one of food-poisoning.

The protean picture of paratyphoid has been pointed out by a number of European writers, who emphasize the fact that it may be very difficult to distinguish from typhus.

Pneumonia. One of the appended cases diagnosed pneumonia (No. 14, Group III) has already been referred to in the paragraph headed "Fever of Unknown Cause." The signs in the lungs were vague in this case. In the case of No. 9, Group II, signs of consolidation were definite. It should be stated, however, that pulmonary lesions of great variety, including pleurisy, bronchitis, and pneumonia, are common in typhus, so that, in the presence of a rash, the possibility of typhus should be borne in mind in such cases. A case of the fourth group, diagnosed "bronchopneumonia and (?) measles," and that diagnosed as "pleurisy with bronchitis," are interesting from this standpoint.

Influenza. As regards influenza, it may be said that the rash seen more or less frequently in this disease may so closely simulate that of typhus as to cause grave doubt as to the correct diagnosis. This was notably true in an epidemic of influenza which occurred some years ago in Paris (Wagener⁵). Moreover, redness of the throat, catarrhal symptoms and bronchitis, are commonly seen in both diseases. Among the cases of this series diagnosed influenza, there were a number having rashes suggestive of typhus, but none in which the clinical

cal picture, as a whole, would have justified the diagnosis of typhus.

Measles. Several writers have pointed out the fact that it may be difficult to distinguish typhus from measles. When Koplik's spots are absent in the early stage of measles or in the later stages in cases in which the rash has been more than usually petechial, great uncertainty might undoubtedly arise. Zeiss⁶ saw co-incident epidemics of typhus and of measles of a virulent type in adults in Smyrna, and says that the differentiation of the two diseases by clinical means in the early stages was extremely difficult. Recourse was had to the proteus reaction described below.

The exanthem of measles is said to differ from that of typhus by showing a brighter red color in its early stage, by beginning on the head, and by a greater tendency to confluence and grouping of the lesions (Miehl⁷). Moreover, in measles, the exanthem generally appears distinctly, if not profusely, on the face; whereas this occurs but rarely in typhus.

In one case of the fourth group, the diagnosis was bronchopneumonia and (?) measles.

Cerebro-spinal fever may simulate typhus, or *vice versa*. The eruption of the former may be very like that of the latter and meningeal symptoms, consisting of slight stiffness of the neck and a slight Kernig's sign, as well as increase of pressure in the cerebro-spinal fluid and a high cell-count are commonly found in severe case of typhus. Typhus, as seen in the United States, is generally of a mild type in which meningeal symptoms are not, as a rule, found. They were present in Case No. 5 of Group II, in which the recorded diagnosis was "Pyrexia of Unknown Origin."

Eruptions in septic conditions may resemble the exanthem of typhus. A short time ago I saw a case of staphylococcus septicemia having a petechial rash. The distribution was not like that in typhus, however, and fresh lesions appeared on succeeding days. Walko⁸ mentions, under this head, streptococcus, staphylococcus, and pyocyaneus sepsis.

Drug Eruptions. Arsphenamine requires special mention. Dr. Edwin H. Place, of the Boston City Hospital, told me recently that in past years he has seen many rashes strongly suggestive of typhus which were caused by arsphenamine. A case which probably belonged to this category was seen recently at the City Hospital.

The eruption in Case 6, Group II, was at first attributed to aspirin, but this view seems later to have been discarded. In Case No. 7, Group II, the eruption was attributed to an unknown drug.

There would seem to be a possible danger of mistaking a drug eruption for the exanthem of typhus, or *vice versa*.

Alcoholism. In the case of the fourth group,

diagnosed as alcoholism with (?) typhoid fever, the rash is described as consisting of many maculo-papules resembling rose-spots. They were of pin-head size and were scattered over trunk, arms, and upper legs. The patient died, but there was no autopsy. Although the diagnosis of alcoholic delirium was probably correct in this case, the question of typhoid remained in doubt, and typhus seems not to have been considered. I have seen a case of delirium of the alcoholic type in typhus. Alcohol may or may not have been a factor in this case, but active delirium is not uncommon in the early stage of severe typhus in persons who are not apparently alcoholic.

PROGRESS IN METHODS OF DIAGNOSIS.

The recognition of atypical cases, especially when they occur sporadically, is difficult or impossible by clinical methods even when supplemented by the common laboratory tests. This is true, above all, in children in whom typhus generally runs a mild course (Brohm⁹).

A voluminous literature on the subject of typhus has developed since 1915. Various clinical signs and numerous laboratory tests of secondary importance have been described.

Two outstanding methods of diagnosis have emerged. Firstly, the proteus reaction of Wilson, Weil and Felix, and secondly, the discovery of a microscopic pathology characteristic of typhus.

The proteus reaction is an agglutination test for the purposes of which an emulsion of a special strain of *B. proteus* is mixed with dilutions of serum from the patient. The special strain is designated as proteus X19 (Wilson,⁴ Arkwright,¹⁰ Fairley,¹¹ Wolff,¹² Weil and Felix¹³).

The pathological changes are found especially in the skin and in the central nervous system. Bits of skin excised during life can be used for diagnostic purposes (Wolbach¹⁴).

A very brief review of some of the laboratory methods is given by v. Gutfeld.¹⁵ The technic for the proteus reaction has been described by Weil and Felix¹³ and by v. Gutfeld.¹⁵

SUMMARY AND CONCLUSIONS.

1. Examination of the records of the Boston City Hospital for the past ten years, shows that during that period of time four cases have been diagnosed as typhus fever.

2. In a few cases diagnosed otherwise, a diagnosis of typhus would probably have been justified. The signs in another small group of cases are highly suggestive of typhus.

3. Numerous cases, probably not typhus, had eruptions suggestive of typhus.

4. —It would seem probable that a few cases of typhus fever escaped detection. The records indicate that the possibility of typhus was not considered in these cases.

5. The diagnosis of typhus is easy in typical cases, but it is important to realize that typhus may simulate a number of other common diseases, and that they in their turn may produce eruptions very suggestive of, or even similar to, that of typhus.

6. The diagnosis of typhus in children is more difficult, as a rule, than in adults, because typhus in children generally runs a very mild course.

7. The diagnosis of typhus in atypical cases may be difficult or impossible by the use of known clinical methods, even when supplemented by the ordinary diagnostic procedures of the laboratory.

8. Two of the newer methods of diagnosis are especially valuable. These are: (a) the proteus reaction of Wilson, Weil and Felix, and (b) microscopic examination of bits of skin excised during life.

Acknowledgments and thanks are due to the Superintendent and to the members of the Visiting Staff of the Boston City Hospital for permission to utilize the material in the records.

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- ¹ Lee: BOSTON MEDICAL AND SURGICAL JOURNAL, 1913, V. 163, p. 122.
- ² Daniélopou: "Le Typhus Exanthématique," Bucharest, 1919.
- ³ Strong, Shattuck, Sellards, Zimser and Hopkins: "Typhus Fever, with Particular Reference to the Serbian Epidemic." Harvard University Press. 1920.
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- ⁵ Wagener: Med. Klin. XV, No. 25.
- ⁶ Zeiss: Arch. f. Hyg. 1918, V. 87, p. 246.
- ⁷ Michl: Wien. kl. Woch. 1920, V. 33, p. 1127.
- ⁸ Walke: Wien. kl. Woch. 1916, V. 291, p. 313.
- ⁹ Brohm: Daily Rev. of Foreign Press, War Office, Lond. Med. Suppl. 1918, Vol. 1, p. 384.
- ¹⁰ Arkwright: Proc. Roy. Soc. Med. Lond. 1919-20. V. 13, Sec. Med. Part II, p. 87.
- ¹¹ Fairley: Jour. of Hyg. 1919, V. 18, p. 203.
- ¹² Wolf: Munch. med. Woch. 1919, V. 66, p. 507.
- ¹³ Weil and Felix: Munch. med. Woch. 1918, V. 65, p. 17.
- ¹⁴ Wolbach, Todd and Palfrey: "The Etiology and Pathology of Typhus." Harvard University Press. 1921.
- ¹⁵ v. Gutfeld: Med. Klin. 1919. p. 691.

CASE HISTORIES.

In the case histories, all non-essential information is omitted. Temperatures after defervescence remained normal except in Case 6.

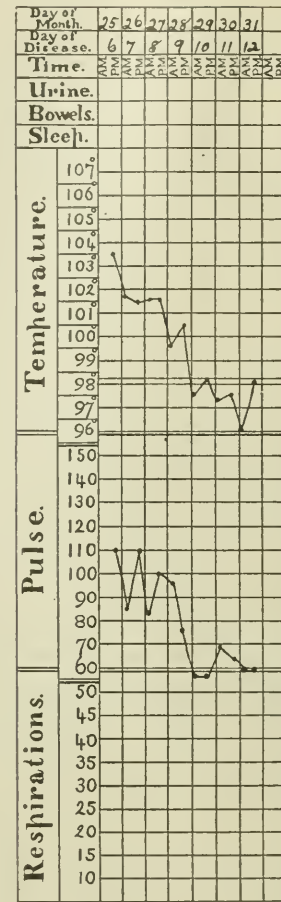
GROUP I.

Case 1. Man. Age, 26. Carpenter. Born in Russia. Lives in Boston. Admitted to hospital May 25, 1913.

Past History—Mother says patient had "typhus fever" (? typhoid) at age of nine, in Russia. *Present Illness*—Six days ago felt weak. Later, on the same day, had a chill, and chilly sensations on the following day with marked weakness. Two days ago, induced vomiting for relief of nausea. Slight headache at times, no pain, no nosebleed, no diarrhea.

Physical Examination—Moderate prostration. Conjunctivae clear. Throat, slight redness. No Koplik spots. On arms, chest, back and abdomen, there is a blotchy erythema dull red in color. Some of the lesions have become pustular. The size of the blotches is irregular.

5/26. Trunk covered with macular eruption which does not disappear on pressure.



CASE 1.

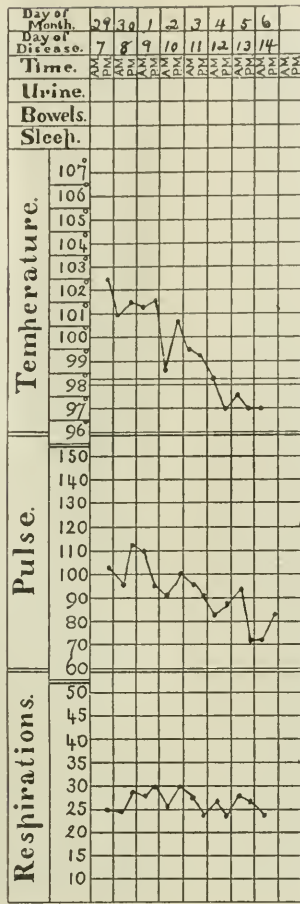
5/29. Temperature normal today. Eruption on body has almost entirely disappeared. Patient very hungry.

6/2. Up and about.

6/5. General condition excellent. Discharged well. Hospital diagnosis, typhus fever.

Laboratory Findings: 5/26—Blood pressure, 96. 5/26—Widal negative for typhoid and paratyphoid A and B. 5/29—Widal negative for typhoid and paratyphoid A and B. 5/29—Wassermann test negative. 5/29—White count, 9,000 and 10,600. 5/30. White count, 7,600.

Note on Diagnosis: In favor of typhus fever in this case is the abrupt onset and rapid fall of temperature, the marked prostration, and the fact that the eruption did not disappear on pressure; also the slightly increased white count, the redness of the throat, the speedy return of strength and the absence of evidence for the typhoid group. The duration of the fever, nine days only, is consistent with a mild attack of typhus. The fact that some elements of the eruption were pustular is in no way characteristic of typhus or of any other probable diagnosis. It seems likely, therefore, that the eruption was complicated by acne. The relation of pulse and temperature and the temperature curve is very suggestive of typhus fever. There can be little doubt that the hospital diagnosis, typhus fever, was correct.



CASE 5.

GROUP II.

Case 5. Man. Age, 28. Pedler. Born in Russia. Lives in East Boston. Admitted to hospital June 29, 1920.

Past History—Remembers none of exanthemata. Present Illness—One week ago, patient began to have pain in lumbar region, headache and slight cough. Felt feverish and indisposed, but continued to work until prevented by increasing severity of symptoms and vomiting. Yesterday the patient was sent in to the hospital with the diagnosis of grippe. His chief complaint was sore throat, slight cough and headache.

Physical Examination—Conscious and rational. Conjunctivae slightly reddened. Pharynx and tonsils hyperemic. Heart and lungs negative. Abdomen shows no spasm or tenderness, but the liver and spleen are palpable. The face is flushed, and on the abdomen are a number of red spots resembling the rose-spots of typhoid. They disappear on pressure. 6/30—Face flushed. Eyes reddened. Spots seen in mouth “suspicious of Koplik’s, but not definite.” Rash resembles early measles, but is diffuse on trunk and arms. 7/2—Neck seems stiffer and more retracted. Rash is less marked. Some redness of throat. Spleen palpable. Spots on abdomen fairly well resembling rose-spots. There is possibly a slight Kernig’s sign. 7/3—Condition considerably improved. No stiffness of neck or

Kernig’s since lumbar puncture was performed yesterday. At this time 35 c.c. of clear fluid under increased pressure was withdrawn. The cell count was 50 per c.c. Rash on body practically all gone. A few macular lesions resembling rose-spots persist on the trunk. 7/20—Patient up and about the ward for over a week. It has not been demonstrated that the patient had typhoid fever. Discharged. Diagnosis—Pyrexia of Unknown Origin.

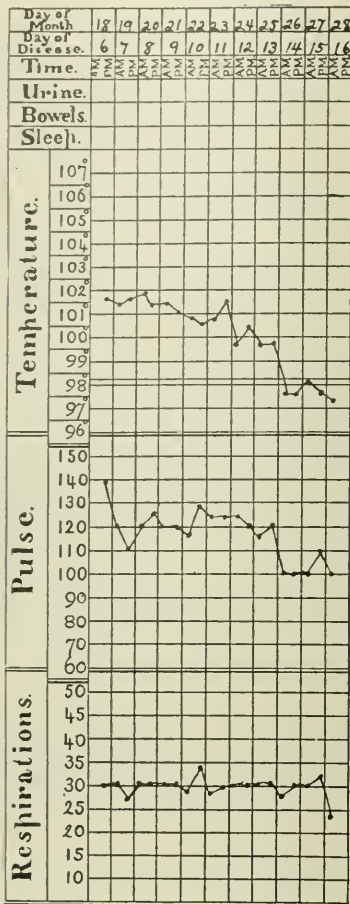
Laboratory Findings: 6/29—White count, 9,600. Blood pressure, 116/74. 6/30—Widal negative. Blood Wassermann negative. 7/2—Spinal fluid Wassermann negative. 7/5—Spinal fluid showed no growth. 7/5—Blood culture negative. 7/3—White count, 13,000.

Note on Diagnosis: In this case the duration of the fever—11 days—is consistent with mild typhus. The pulse rate and respiratory rate followed the temperature, as in typhus. Defervescence was complete in four days, and the onset was abrupt as compared with typhoid. The stiffness of the neck and suggestion of Kernig’s sign are both common in typhus as are the flushing of the face and the redness of the conjunctivae. The slightly increased white counts, the increase of pressure of the cerebro-spinal fluid and the increased cell count in the same, are to be expected in typhus. Many of these symptoms are not to be expected in typhoid fever, and the negative Widal test and blood culture are against it. The record shows that measles was considered in the beginning, but that this diagnosis was discarded. Although the rash apparently was not petechial in character, it is not always so in mild cases of typhus. All the findings are consistent with a diagnosis of typhus.

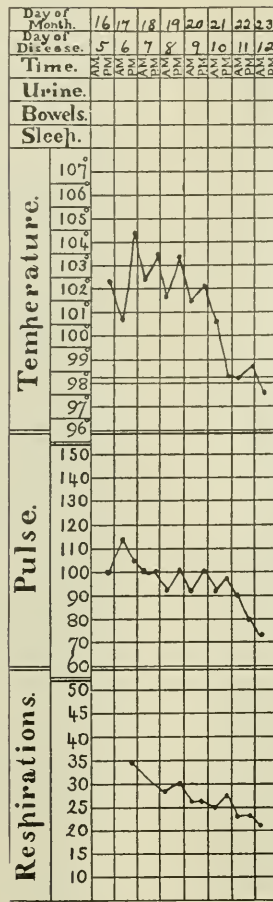
Case 6. Woman. Age, 21. Works in department store. Born in France. Lives in Boston. Admitted to hospital February 18, 1921.

Past History—Measles at age of 3. No other diseases except occasional slight sore throat. Present Illness—Has been feeling tired for some time, but worked until 2/13. On that day, got feet wet and neglected to change shoes. Soon began to have headache and shivering. Went home and to bed, where she had a chill lasting about two hours. The following day tried to go to work, but headache so severe she gave it up. Since 2/15 has remained constantly in bed, having headache, frequent chills, and a temperature of 101.3, with sweating at night.

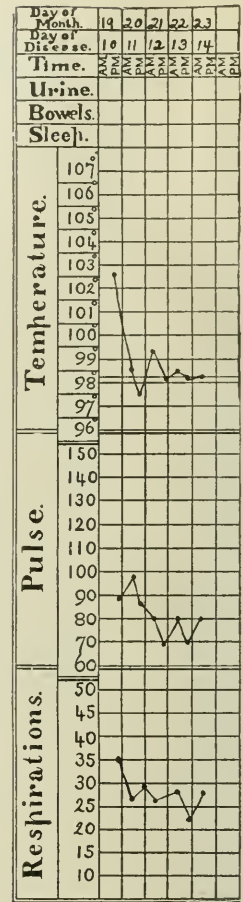
Physical Examination—Negative, except for eruption described as follows: Over trunk and extremities is a pink rash composed of minute discrete macules, the color of which disappears on pressure. 2/23—Two days ago the patient had a fine erythematous rash extending over the whole body and extremities. This rash was not present on admission. A consultant thought that the rash might be due to aspirin. 2/27—Temperature suddenly came down to normal and patient feels fine today. The rash has entirely disappeared. 3/7—Patient developed a high temperature yesterday, and had marked injection of the throat with a few patches of exudate on the tonsils and in the crypts. White count increased. The diagnosis was follicular tonsillitis. Twenty grains of aspirin was recently given every hour for three doses, but no rash resulted. 3/11—Throat clear. Temperature normal for 48 hours. 3/17—Discharged relieved. Diagnosis—Fever. Cause unknown. Follicular tonsillitis.



CASE 6.



CASE 7.



CASE 8.

Laboratory Findings: 2/19—Blood pressure 130/75. 2/20—White count, 7,800. Polymorphonuclears, 79%. 2/22—Wassermann negative. 2/22—White count, 7,600. Red count, 4,480,000. 2/25—Widal negative. 3/6—White count, 15,600.

Note on Diagnosis: In discussing the diagnosis of this case, it seems clear that the second attack of fever had no definite relation to the illness for which the patient entered the hospital, and that it is to be regarded as caused by an attack of tonsillitis occurring in convalescence. All the symptoms and signs of the original illness are consistent with a diagnosis of typhus fever. The record seems to indicate that the patient was not known to have taken aspirin before the appearance of the rash. Moreover, the aspirin given during the attack of tonsillitis produced no rash whatever. It seems unlikely, therefore, that the eruption was due to this drug. The duration of the fever,—13 days—coincides with the ordinary course of typhus, which seems the most probable diagnosis; but recorded facts do not exclude paratyphoid fever, and the eruption of typhus is usually composed of larger macules than those in this case.

Case 7. Man. Age, 18. Drug clerk. Born in Russia. Lives in Boston. Admitted to hospital September 6, 1912.

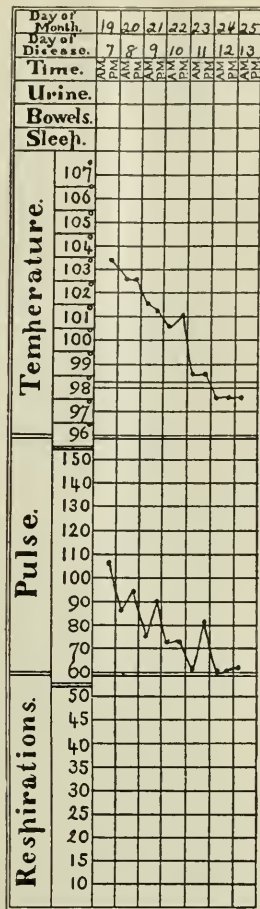
Past History—Never sick before. Present Illness—Five days ago got dizzy while at work. Felt nauseated and had severe headache, on account of

which he was sent home by his employer, and went to bed. For the past three days has been having slight chills followed by sweating. Now complains of severe frontal headache and pain in the back. Slight dry cough for a few days.

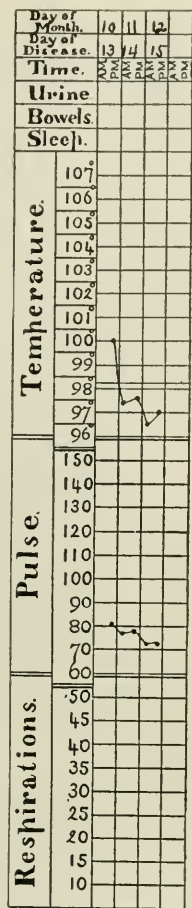
Physical Examination—Conjunctivae not injected. Throat slightly reddened. Abdomen moderately distended. No local tenderness, but some resistance in the region of the spleen, the edge of which was not definitely felt. Scattered over chest, arms, legs and back is a pinkish macular eruption. The skin between the lesions is normal and there are no lesions on the face or neck. 9/20—Erythema fading. Considerable prostration. 9/28—Unable as yet to find out what drug caused the erythema. 10/7—Discharged well. Diagnosis—(?) Typhoid fever. Dermatitis medicamentosa.

Laboratory Findings: 9/17—Blood pressure, 106. White count, 6,200. 9/18—Widal negative. 9/20—Widal negative. 9/24—Widal negative.

Note on Diagnosis: The abrupt onset, the curves of temperature, pulse and respiration, and the duration of the fever are consistent with mild typhus. The chills, headache and redness of the throat are consistent with this diagnosis as is the distribution of rash. The absence of petechiae is not an important objection, because in mild typhus petechiae are not always present. There is nothing in the case particularly suggestive of typhoid fever. Evidence in regard to paratyphoid is not recorded. Typhus fever seems the most probable diagnosis.



CASE 8.



CASE 10.

Case 8. Man. Age, 37. Storekeeper. Born in Russia. Lives in Roxbury. Admitted to hospital May 19, 1912.

Past History—Measles and pertussis. *Present Illness*—Ten days ago had several chills and severe headache, but no pain elsewhere, and no vomiting. Fever ever since. •Diarrhea for past three days.

Physical Examination—Slight prostration. Tongue dry and shows a heavy, white coat. Throat dry and slightly red, with mucus adherent to the posterior pharyngeal wall. Spleen easily palpable. On the trunk and extremities are many pin-head acuminate papules like rose-spots. 5/20—Spleen palpable. Abundant macular eruption. 5/24—Spleen palpable. Rose-spots persist. (Temperature reached normal four days ago.) 5/31—Patient discharged well. *Diagnosis*—Typhoid fever.

Laboratory Findings: 5/20—White count, 19,400. 5/21—Widal positive.

Note on Diagnosis: The temperature in this case reached normal on the eleventh day by crisis. The onset was abrupt. These features are very suggestive of typhus fever. The probability of typhus is further increased by the abundance of the eruption and by the fact that the eruption was still visible four days after the temperature became normal. There is no feature of the case inconsistent with typhus fever. Observations made in recent years show that a positive Widal test in the ordinary dilutions is common in typhus. The

abrupt onset, the short duration of the fever, its termination by crisis and the white count of 19,400, as well as the persistence of the eruption, are features not to be expected in typhoid fever. The diagnosis of typhus fever seems most probable.

Case 9. Man. Age, 40. Runs a bottle machine. Born in Russia. Lives in Boston. Admitted to hospital March 19, 1913.

Past History—Measles in childhood. *Present Illness*—Well until one week ago, when he began to feel chilly. Feverishness has persisted without other symptoms, except that four days ago the patient noted a rash on the arms, chest and abdomen. Complains only of feverishness and constipation.

Physical Examination—Throat shows slight general redness. The skin shows many dark red macules of small size scattered over chest, abdomen, arms and back. 3/20—Very large number of reddish-brown spots on abdomen and chest. "Mostly disappear on pressure." The eruption is very abundant on the back. 3/22—Spots still abundant; some disappear on pressure. 3/23—Dulness throughout left lower lobe without modification of breathing. Occasional râle after cough. (Lungs were negative on March 20th.) General condition much improved. 3/27—Left base resonant. Very rare râle after cough. 4/1—Gaining strength rapidly. Discharged well. *Diagnosis*—Pneumonia.

Laboratory Findings: 3/20—Blood pressure, 96. White count, 10,300. 3/23—White count, 8,400. 3/24—Widal negative. 3/25—Widal negative.

Note on Diagnosis: The duration of the fever (11 days), the rapid lysis, the profuse eruption, some elements of which did not disappear on pressure, the persistently negative Widal tests, and the increased white count, suggest the diagnosis of typhus fever. The observation of slight dulness at the left base on March 23d—the last day of the fever—may have been caused by atelectasis, and this hypothesis seems to me more probable than that of pneumonia. The diagnosis of typhus fever would have been justified.

GROUP III.

Case 10. Man. Age, 30. Tailor. Born in Russia. Lives in Boston. Admitted to hospital September 10, 1912.

Past History—Unimportant. *Present Illness*—Thirteen days ago began to have headache and pain all over the body, but kept at work until the third day. On the fourth day, he remained in bed because too weak to get up. A physician who saw him on the fifth day made the diagnosis of grippe. The headache at this time was very severe. Worse in the morning. The patient felt hot and feverish, especially in the afternoon, and had profuse sweating at night, and pain all over body. Later, the physician told the patient that he probably had typhoid fever. Weakness, pain, sweating, anorexia, constipation and headache continued, the latter especially severe for the past three days. Yesterday the patient had a nosebleed of about two tablespoonfuls. Has had a cough in the daytime for three or four days, and raises a little whitish sputum.

Physical Examination—The skin is hot and covered with profuse perspiration. Tongue is coated. Throat negative. Lungs resonant, except at right

top, where resonance is somewhat impaired. At this point, fine crepitant râles are heard, and the vocal resonance and tactile fremitus are increased. Abdomen slightly sensitive in the region of the spleen. Spleen not felt. (?) Rose-spots on chest and abdomen. Kernig's sign present, but no rigidity of neck. 9/14—Physical examination negative. No laboratory evidence of typhoid. 9/17—Up and about the ward for the past three days without ill effect. General condition excellent. Discharged well. Diagnosis—Febricula.

Laboratory Findings: 9/11—White count, 11,000. Blood pressure, 90. 9/11—Widal negative. 9/15—White count, 16,200.

Note on Diagnosis: In this case, although the onset was somewhat less abrupt than is often the case, the febrile period of thirteen days and the rapid lysis suggest typhus. The severe headache, the increased white count, the rapid convalescence, the Kernig's sign, and the negative Widal, are in accord with this diagnosis. The rash was more consistent with a diagnosis of typhoid, but not incompatible with mild typhus. The record does not show whether agglutination tests for paratyphoid were performed, and the evidence for the exclusion of the typhoid group is incomplete. No satisfactory diagnosis can be arrived at from the evidence in hand; but typhus fever is strongly suggested, with paratyphoid as a possible alternative diagnosis.

Case 11. Man. Age, 32. Butcher. Born in Newfoundland. Lives in Boston. Admitted to hospital July 16, 1912.

Past History—Unimportant. Present Illness—Eight days ago, while at work, became weak and dizzy, and had headache, but continued to work until two days ago when he fell down as a result of weakness. A physician who was called at that time told him to go to bed, and found his temperature to be 106. He thinks he has had fever from the beginning, and that he was delirious six days ago. He felt better in the mornings, and feverish in the afternoons. Has been very constipated in spite of the use of cathartics. Has felt nauseated, and has had pain in the limbs.

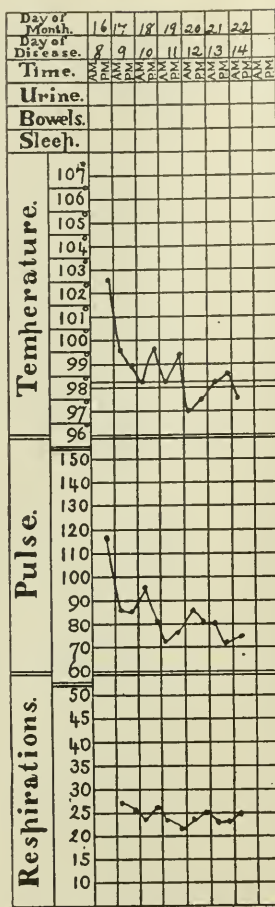
Physical Examination—Tongue moist; slight white coat; red about edges. Throat not remarkable. Rose-spots on abdomen. Examination otherwise negative. 7/20—Widal repeatedly negative. No rose-spots. Patient says he feels much better. 7/24—Patient up and about daily, and feeling perfectly well. 7/25—Discharged well. Diagnosis—Febricula.

Laboratory Findings: 7/17—Widal negative. 7/18—Widal negative. White count, 14,000.

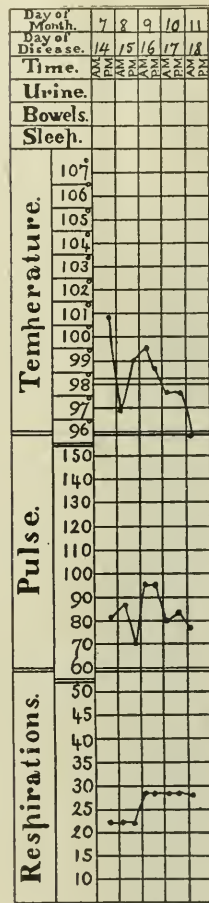
Note on Diagnosis: The course of the fever, its duration, the severe headache, prostration, delirium, the increased white count and the negative Widal are consistent with a diagnosis of typhus fever. The rash, however, was slight. As in Case 10, the data seem insufficient for diagnosis, but typhus fever is strongly suggested, and paratyphoid seems possible, unless agglutination tests for paratyphoid were tried but not recorded.

Case 12. Woman. Age, 27. Housewife. Born in Massachusetts. Lives in Boston. Admitted to hospital April 7, 1912.

Past History—Patient says that she had typhoid



CASE 11.



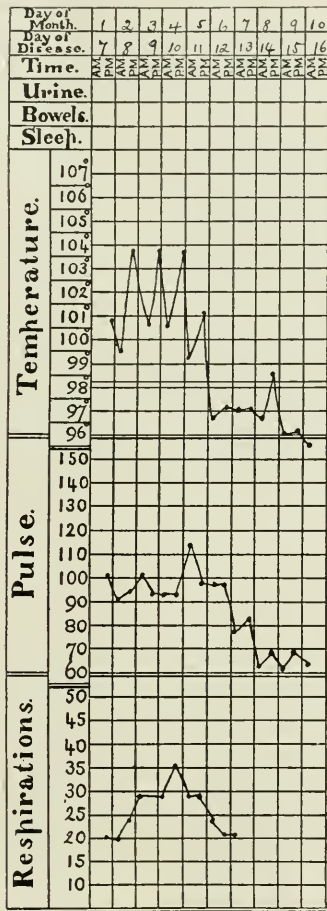
CASE 12.

fever some years ago. Present Illness—Two weeks ago began to have severe frontal headache, pain in back of the neck, and vomiting. The vomitus was greenish in color and was not observed to contain blood. Since then, has had considerable fever and general malaise. Four days ago, neck became more painful and rigid, preventing the patient from moving her head. No nosebleed, sore throat or sweats. Has slept very poorly.

Physical Examination—Neck moderately stiff. Tenderness over cervical vertebrae. Breath sounds at left apex are harsh, and there are a few medium râles, but no dulness or change in vocal resonance or tactile fremitus. On the abdomen and chest, and to a less extent on the extremities, are many papules and macules, varying in size from that of a pin-point to that of a "BB" shot. They disappear on pressure. 4/11—The stiffness in neck noted on admission has now entirely disappeared. 4/15—Eruption which resembled rose-spots has entirely disappeared. Patient eats and sleeps well. No evidence of typhoid. 4/17—Discharged well. Diagnosis—Acute infection.

Laboratory Findings: 4/8—White count, 14,800. 4/8—Widal positive. 1:10 marked clumping. No motility. 1:50 same. Few non-motile bacilli not clumped. 4/10—Widal positive. 1:50 marked clumping. No motility. 1:100 clumping. No motility. Many non-motile bacilli not clumped. 4/11—White count, 7,000.

Note on Diagnosis: The abrupt onset, the fever of 16 days' duration, terminating by rapid lysis, the severe headache, the extensive rash consisting of macules and papules, the increased white count, are strongly suggestive of typhus fever. The patient's statement that she had had typhoid a few years previously was evidently considered sufficient evidence to exclude typhoid as a diagnosis in this case. The positive Widal may have been due to the previous attack of typhoid, or may have been a concomitant effect of typhus fever. The fact that the elements of the rash varied in size and that both macules and papules were present, is more in harmony with typhus than with any disease of the typhoid group. Typhus seems the most probable diagnosis in this case.



CASE 13.

Case 13. Man. Age, 18. Dishwasher. Born in Greece. Lives in Boston. Admitted to hospital November 1, 1912.

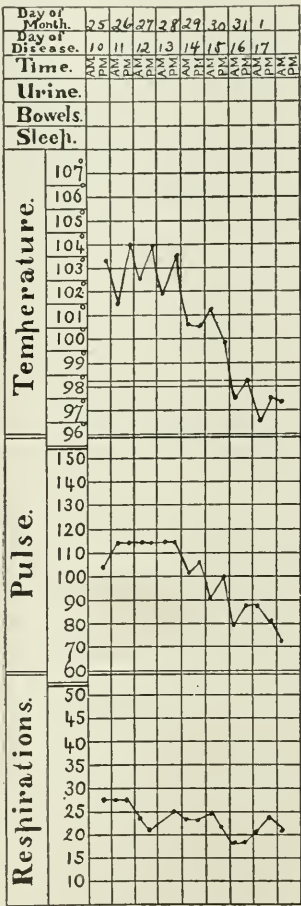
Past History—Measles in childhood. Interrupted fever, with chills and headache, called "spleen disease," three years ago. Probably malaria. Present Illness—Fever for past week, with headache and nosebleed. Has stayed in bed for two days and has vomited two or three times. This he attributes to medicine which he had taken.

Physical Examination—Apathetic. Throat shows no redness. Abdominal reflexes present. On the skin are many pink spots the size and shape of

rose-spots, but not obliterated by pressure. 11/5—Headache very severe. No spots remaining. Widal test suggestive on day of admission, positive today. 11/9—Temperature normal for four days. Bowels regular, appetite good, and sleeps well. 11/27—Has been up and about for over a week. Discharged well. Diagnosis—Typhoid fever.

Laboratory Findings: 11/1—Widal very suggestive. White count, 7,000. Blood pressure 125. 11/2—White count, 11,000. 11/3—White count, 11,000. 11/4—Widal positive. 11/5—Smear for malaria negative. 11/19—White count, 10,000.

Note on Diagnosis: The probable duration of the fever (eleven days), the rapid lysis, the pulse-rate proportional to temperature, the severe headache, the fact that the spots did not disappear on pressure, and the slightly increased white count, suggest the diagnosis of typhus fever. The positive Widal reaction is no obstacle to this diagnosis. Although the possibility of other diseases must be considered, typhus seems to me the most probable diagnosis on the evidence at hand.



CASE 14.

Case 14. Man. Age, 27. Painter. Born in Russia. Lives in Boston. Admitted to hospital January 25, 1915.

Past History—Unimportant. Present Illness—Ten days ago felt drowsy and remained in bed for the four days following. Then, feeling better, the patient got up and worked for two days, after which he was obliged again to remain in bed.

Complains of weakness and indefinite pain in the epigastrium.

Physical Examination—Prostrated. Conjunctivae normal in appearance. Tongue shows a thick, moist, yellow coat. Throat negative. Spleen distinctly palpable. Skin shows several rose-spots on front of trunk. Bronchial breathing at right apex. 1/26—Tongue coated and dry. Spleen palpable. (?) Rose-spots over chest and abdomen. 1/30—Patient much more comfortable. General condition good. 2/16—Patient in good condition. In view of the three negative Widal reactions, visiting physician made the diagnosis of pneumonia from the chart. Patient discharged well. Diagnosis—Pneumonia.

Laboratory Findings: 1/25—Widal negative. Blood pressure 90/50. White count, 5,600. 1/28—Wassermann negative. 2/3—Widal negative. 2/10—Widal negative.

Note on Diagnosis: In this case the fever of fifteen days duration, the rapid lysis, marked increase of pulse and respiratory rates and repeated negative Widal reactions, are suggestive of typhus fever. The bronchial breathing at the right apex, mentioned at the time of admission, was not subsequently referred to in the notes. Neither is there any record of râles having been heard. It seems probable that this observation is to be regarded as indicating nothing more than the normal modification of respiration in this region. There was no cough, pain in chest or other evidence of pneumonia, so that the clinical diagnosis of pneumonia is without much support. Although the eruption was scanty and the white count low, I incline toward the diagnosis of typhus fever in this case.

The New England Surgical Society.

THE SURGICAL MANAGEMENT OF TOXIC GOITERS.

BY JOHN DE J. PEMBERTON, M.D., ROCHESTER, MINN.

[Section of Surgery, Mayo Clinic.]

THE term "toxic goiter" includes exophthalmic goiter and hyperfunctioning adenomatous goiter. During the past decade the immediate and end-results of the surgical treatment of toxic goiters have improved greatly. The improvements can be attributed directly to advances in our knowledge and surgical management of the diseases, due chiefly to the work of C. H. Mayo, Crile, Plummer, Kendall, and others, and indirectly to the fact that the knowledge of the decreased surgical mortality and better end-results has led patients to seek surgical treatment before the disease has produced irremediable visceral changes.

The statistics on exophthalmic goiter quoted in this paper are based on 1224 operations performed on 677 patients from July 1, 1920, to July 1, 1921. The statistics on hyperfunctioning adenomatous goiter are based on 281 operations on 281 patients during the same period.

The diagnosis of exophthalmic goiter was made from the clinical history and findings, and from the determination of the basal metabolic rate, and was corroborated in every instance in which gland tissue was removed by the pathologist's diagnosis of diffuse parenchymatous hypertrophy of the thyroid gland.

TWO FORMS OF EXOPHTHALMIC GOITER.

Exophthalmic goiter may occur in two forms, the remittent and the chronic. In the remittent form, the onset is usually gradual, and the patient may not be aware of its presence until the occurrence of a mild exacerbation induced by shock, fright, sickness, overwork, and so forth. The symptoms gradually increase in severity, with or without the appearance of a goiter or exophthalmos, until a crisis occurs in which all the symptoms suddenly increase in severity and usually are accompanied by nausea, vomiting, diarrhea, and extreme debility. If the patient survives the crisis, a period of partial remission of the symptoms follows which may persist for months, but usually is superseded again and again by waves of varying intensity. The remission may be complete and the patient symptomatically cured, the disease being quiescent, or the remission may be partial, in which case the patient becomes a semi-invalid. In the chronic form the disease slowly progresses from a gradual onset and runs an even, usually mild, course, uninterrupted by waves of exacerbation. The disease may begin as the remittent form and continue as the chronic. The longer the progress of the disease is allowed to remain unchecked, the more marked will be the visceral degenerations (heart, liver, kidney, and muscles).

THE SELECTION OF PATIENTS FOR OPERATION.

Surgery is now the treatment of choice in the greater number of these cases. However, surgery is not indicated in all stages of the disease, and in the choice of the time to operate and the selection of the type of operation for the individual patient lies the real crux of the problem. Unfortunately, there is no rule of thumb to govern the indications for operation that is applicable to all patients.

The high operative risk attendant on surgery of the thyroid in exophthalmic goiter is not due to the accidental causes incident to a major surgical procedure, such as hemorrhage, infection, and embolism, but to the acute intensity of hyperthyroidism induced by the operation, and to the frequency of pulmonary complications due to the patient's lowered resistance. Naturally, then, our efforts should be directed toward preventing and controlling the post-operative reaction and toward building up the patient's resistance. While much may be accomplished by reducing the intensity of the reaction and by applying supportive measures, unhappily, our means of actually checking its

progress are very limited, and usually the post-operative wave runs its natural course of about three or four days, and is then checked by the patient's resistance. Our means of preventing the reaction lie in the technic of the surgical management and in the preliminary treatment of the graver forms of the disease.

During the past five years the routine estimation of the basal metabolic rate in all patients with toxic goiter has been of inestimable value to the clinician and surgeon in planning the management of these patients. The basal metabolic rate gives an "accurate mathematical index of the degree of functional activity of the thyroid gland." Aside from its value as an aid in the differential diagnosis of goiters associated with neurosis, it is apparent that repeated estimations in a patient will indicate, in mathematical terms, the accurate progress or regression of the disease. Generally speaking, the basal metabolic rate is a relative index of the operability; that is, if the criterion of operability were based solely on the basal metabolic rate in a large group of cases a higher mortality might be expected in a group with rates above +50 per cent. than in a similar group with rates below +50 per cent. The individual case cannot be judged by this alone. The basal metabolic rate represents the minimum heat production of the body and is essentially a measurement of the catabolic processes; it does not express the degree of anabolism. It is readily conceivable that the rates of anabolism and catabolism may be increased equally or unequally, so that either anabolism or catabolism may predominate. In the patient in whom anabolism predominates, the increased heat production is maintained at the expense of the food intake and the body cells suffer only from their increased activity; in the catabolic type the increased heat production is maintained, to a large extent, by the stored body pabulum, the cells thus suffering in consequence. Clinically, the pictures of the two states differ widely. The one patient is mentally alert, excitable, well-nourished, flushed, warm-skinned, of a normal or slightly decreased weight, with a good or ravenous appetite. The other is alert but apprehensive, pale or cachectic, showing marked loss in weight and strength, with a poor or normal appetite. These types vary in degree in different patients, and in the same patient one state may supersede the other. It is apparent that the operative risk is considerably greater in the patient with the catabolic type, the patient who has lost weight, even though the basal metabolic rate is less than in the other. Not infrequently patients return to the Clinic after double ligation, and an extended period of rest at home, greatly improved in every respect, with the surgical risk obviously diminished, but with a higher basal metabolic rate than on the previous visit. It is therefore evident that the basal metabolic rate as an index to the operability of a patient with exophthalmic goiter is valuable

only when considered with the clinical history and findings.

The high operative risk clearly contraindicates operation for exophthalmic goiter in three phases of the disease; that is, during an impending crisis (evidenced by a steady rise in the basal metabolic rate and loss of weight), during a crisis, and immediately after a crisis. Added risk is obviously encountered in patients with low-grade infections, such as tonsillitis, otitis media, pleurisy, and the like; in patients with marked lowered resistance, as evidenced by marked loss of weight and strength; in patients with dilated hearts, and in patients with visceral degeneration. About 1 per cent. of all patients with exophthalmic goiter show some trace of glycosuria, but unless they have true diabetes, the operative risk is not materially increased.

CLASSIFICATION OF PATIENTS ACCORDING TO TREATMENT.

Surgically, all patients with exophthalmic goiter fall into one of three groups: (1) patients on whom a primary thyroidectomy can be performed with reasonable safety, (2) patients, concerning whom the wisdom of advising thyroidectomy is doubtful, and (3) patients in whom indications for extended observation or preliminary measures are clearly defined.

Group 1. Primary thyroidectomy, unless contraindicated by some of the factors enumerated, is indicated in patients with mild or moderate hyperthyroidism, whose basal metabolic rate is probably not more than +55 per cent., provided they are carrying the increased load well, as evidenced by their ability to perform their ordinary work requiring moderate exertion. It is important that the severity of the disease is not increasing. The degree of loss of strength and weight and the height of the basal metabolic rate, taken separately, are only relative criteria of the operability of patients with exophthalmic goiter; but taken together, and in relation to the phase of the disease, they become the basis on which an opinion is formed. Thus, in this group, the greatest loss of strength was graded 4 on the basis of 1, 2, 3, 4; the greatest loss of weight was 55 pounds, and the highest basal metabolic rate was +90 per cent. The averages, however, for the group were: loss of strength, 1.4; loss of weight, 14 pounds, and basal metabolic rate, +36 per cent.

Group 2. In this group are patients whose basal metabolic rates are but slightly higher than those of the preceding group, but about whom doubt exists as to the advisability of recommending thyroidectomy, possibly because of recent loss of weight, marked or moderate weakness of the quadriceps, the presence of slight edema, or undue apprehension on the part of the patient. In this group, ligation of the superior thyroid vessels is advised as a test. If no reaction follows, or if one of only mild severity, as evidenced by temporary increased tachy-

cardia, nervousness, and slight vomiting, the gland may be resected in from seven to ten days. However, if following ligation, moderate or severe reaction develops, including marked restlessness, extreme tachycardia, vomiting, and possibly fever, a second ligation is indicated, and the patient is classified in Group 3. In Group 2, the greatest loss of strength was graded 4, the greatest loss of weight was 67 pounds, and the highest basal metabolic rate was +89 per cent. The averages, however, for the entire group were: loss of strength, 1.65; loss of weight, 19 pounds; and basal metabolic rate, +51 per cent.

Group 3. A certain number of patients, with exophthalmic goiter, who come to the surgeon, are obviously in need of rest, close observation in a hospital, and, possibly, preliminary medical and surgical treatment before major surgery can be attempted. The principal indications may be enumerated: (1) patients, irrespective of their general appearance, who are carrying a high degree of hyperthyroidism, as evidenced by a high metabolic rate, of +70 per cent. or higher; (2) patients in actual crises, or patients whose histories indicate progression of the disease; (3) patients who are extremely apprehensive; (4) patients who show marked weakness, indicated particularly by their inability to walk any distance, or to climb steps; (5) patients with marked recent loss of weight; (6) patients with cardiac dilatation; (7) patients with evidence of chronic visceral changes, and (8) patients with chronic infection. By rest and close observation in these cases the phase of the disease may be determined, or the patient may be tided over an actual crisis, an overworked myocardium restored, or an infection may be eliminated, and a certain number of these patients may then be classified in Groups 1 or 2. The greater number, however, owing to excessive hyperthyroidism, or to lowered resistance, as evidenced by marked loss of weight, strength, and endurance, must be restored to their balance by preliminary measures before resection of the thyroid gland can be attempted with safety. In some of the patients, the effect of simple surgical procedures cannot be anticipated with any degree of accuracy. Accordingly it remains for the surgeon to feel his way, beginning with the simplest procedure, such as injection into the thyroid gland of quinin-urea or of boiling water, in order to test the patient's resistance to an acute exacerbation of hyperthyroidism. If reaction follows, the procedure is tried again, after the complete subsidence of the reaction. If, however, no reaction follows, ligation of the superior thyroid vessels can usually be undertaken safely. In most instances, the exclusion of a possible dangerous reaction following ligation may be anticipated and the procedure undertaken with but slight risk.

It is a frequent observation that following any exacerbation of hyperthyroidism, whether

due to the natural course of the disease or induced by operation, a diminution of the hyperthyroidism occurs in from five to ten days, as recorded by the basal metabolic rate, below the preexacerbation level. This is accounted for by the patient's increased tolerance or immunity, and with few exceptions the reaction to the second ligation is of diminished severity. However, if a very marked reaction follows the first ligation, especially if accompanied by great prostration and fever, the second ligation, unless postponed for several weeks, until the patient has regained her strength, may prove fatal.

After the ligation of both superior thyroid vessels and a period of rest (3 months), the patients, with but few exceptions, show a really remarkable improvement. There is great gain in strength, endurance, and weight (often equalling the amount lost after the onset of the disease). In this series the average weight gained was 20 pounds, and the average reduction in the basal metabolic rate was 27 per cent. In many instances the recovery is so nearly complete that the patient feels that further surgery is unnecessary, but operation for the resection of the thyroid gland should be insisted on, or a "recurrence" will most likely follow.

A small percentage of patients who return after ligations will not be sufficiently improved to warrant undertaking a thyroidectomy with reasonable risk. The failure to gain may be accounted for, in most instances, by (1) continued overexertion or mental stress, (2) an intercurrent infection, (3) visceral degenerative changes, or (4) the failure actually to have ligated the superior thyroid artery. The difficulties encountered in correctly handling this small group of patients present a most perplexing problem to the surgeon. After further rest, some patients show improvement spontaneously; others improve after "religations" of the superior or inferior thyroid arteries. X-ray treatment has been tried with indifferent success. Many of these patients are semi-invalids and show decided visceral degenerative changes, the effect of the long-continued hyperthyroidism. The limits of remedial measures beyond partial ablation of the thyroid gland are obviously restricted, and in consequence the patients cannot be made good risks; they constitute, therefore, the largest proportion of the mortality group, and if the surgeon is working with an eye on the mortality record, he is justified in refusing to operate. On the other hand, the operation, in many instances, is justifiable and indicated, for after the progress of the disease has been checked by a partial thyroidectomy, many of these patients live happy and useful lives for many years. In this group (Group 3) the greatest loss of strength was graded 4, the greatest loss of weight was 77 pounds, and the highest basal metabolic rate was +129 per cent. The averages for the group were: loss of strength, 2.22; loss of weight, 22 pounds; and basal metabolic rate, +63 per cent.

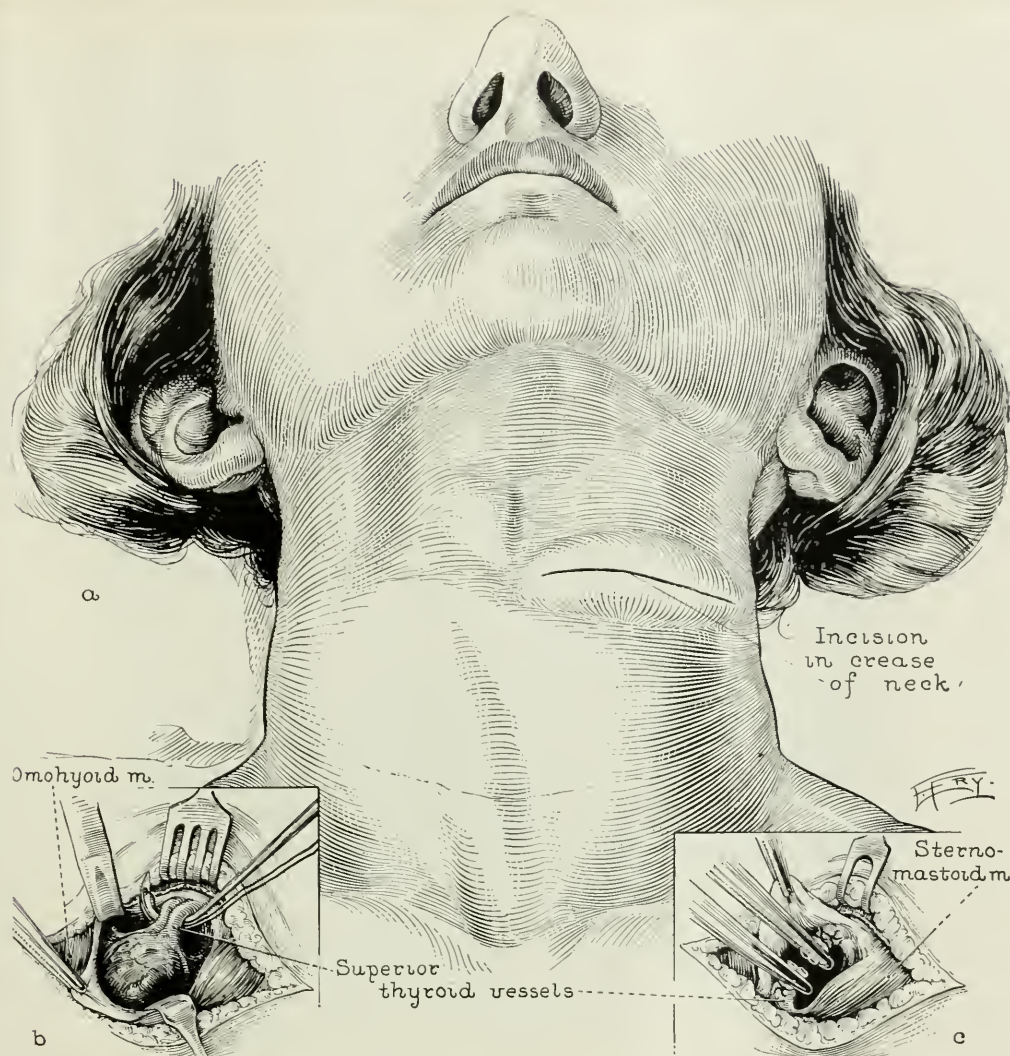


FIG. 1.—a The incision is outlined by the needle in the crease of the neck before the superficial structures are injected. b Fascia between the omohyoid and sternohyoid muscles divided and the ligature passed beneath the superior thyroid vessels. c The superior thyroid artery and vein divided and ligated.

OPERATIVE PROCEDURES.

As I have indicated, much may be accomplished by the preoperative preparation of patients who are poor risks. Often, rest in bed for a week or ten days will bring about decided improvement and materially change the operative risk. It must be emphasized, however, that if rest in bed is prolonged over several weeks, the patient's strength is lessened, and one may often be deceived with regard to the operability, by the appearance of the patient in bed. It is most desirable, therefore, to have the patient up and around for a week or more before the final decision is made. Digitalis is indicated in patients with decompensated and fibrillating hearts.

Two important considerations, often overlooked in the medical management of patients with exophthalmic goiter, are the necessity for the increase in the fluid and food intake. Increased consumption of fluids aids materially in

the elimination of the by-products of metabolism and of heat through evaporation. Boothby and Sandiford have shown by recent experiments that a patient with moderate hyperthyroidism, at rest in bed, requires higher caloric intake than a person doing moderate muscular work, so that the necessity of maintaining an easily assimilable diet becomes apparent.

Anesthesia. Local anesthesia, or local combined with as little general anesthesia (gas oxygen or ether) as is possible to satisfy the patient, is safest for patients with exophthalmic goiter. Although these patients are nervous, by reason of their disease, their confidence is easily acquired, and with but few exceptions, they are eager for operation. It is decidedly advantageous to have the opportunity of observing patients who are poor or doubtful risks, awake on the operating table, and if occasionally a patient loses entire self-control or becomes extremely apprehensive, a procedure milder than

the one originally planned is indicated. Long, general anesthesia of any kind tends, temporarily at least, to lessen the patient's resistance, and its effect, therefore, is only another obstacle to be overcome by an already overburdened organism.

OPERATIVE TECHNIC.

Ligation. The operative technic of ligation of the superior thyroid vessels and resection of the thyroid gland, is well standardized. I shall emphasize only a few points of special importance (Fig. 1). A transverse incision about 4 cm. long, in the line of the natural crease in the neck, at the level of the thyroid cartilage, gives ample exposure and leaves an insignificant scar. By

Thyroidectomy. The importance of the care, skill, and thoroughness of the operative technic cannot be overemphasized. Not infrequently these considerations are the deciding factors in the immediate and ultimate recovery of the patient. Hemorrhage, infection, the labored or obstructed breathing incident to the injury of the recurrent laryngeal nerve, or the exhaustive effect produced by prolonged operation will be just so much dead weight and may be sufficient to tilt the scale.

With the employment of local anesthesia it is especially essential that a wide exposure of the gland be made in order to prevent all unnecessary traction, and with this end in view, the pre-thyroid muscles are freely divided (Fig. 2).

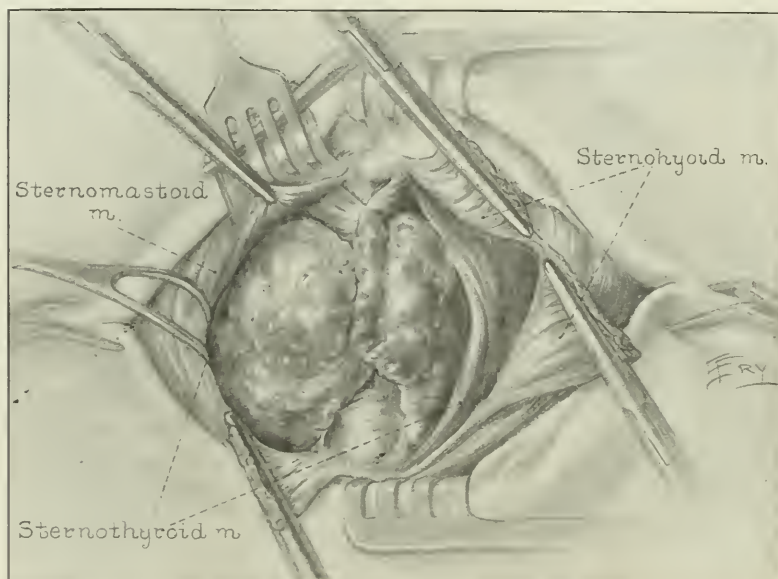


FIG. 2.—Exposure of the thyroid gland by an incision through the platysma and division of the sternohyoid muscles.

dividing the cervical fascia longitudinally just mesial to the inner border of the sternomastoid muscle, the anterior belly of the omohyoid muscle comes into view. By retracting this mesially, and the sternomastoid laterally, the superior pole of the gland and the superior thyroid artery are seen. A ligature passed around the pole of the gland will, in some instances, fail to include the artery, and the artery should, therefore, be exposed and ligated separately. Often, owing to the plexus of veins around the artery and the difficulty of avoiding puncture of these with an aneurysm needle, it may be simpler to divide the vessels between clamps and ligate the ends. At times an artery is encountered of such huge dimension that the surgeon may be in doubt for a moment whether he is dealing with the thyroid artery or the carotid. As the flow of blood in the two vessels is in different directions, the identity of the artery may be established by temporarily clamping the artery and noting on which side of the clamp the pulsations are checked.

Formerly the operation consisted in the extirpation of a lobe and the isthmus, with the resection of a small portion of the remaining lobe. On account of the rather high percentage of recurrences, this led to a modification consisting in the resection of both lobes with removal of the isthmus, and the preservation of gland tissue posteriorly and adjacent to the side of the trachea, amounting to from one-sixth to one-third of a normal-sized lobe on each side (Fig. 3). The age of the patient is the most important consideration in gauging the amount of gland to be saved: the largest amount is preserved in young persons. While the minimum amount of thyroid gland necessary to carry on its normal function is not accurately known, it must vary with the individual and with the character of the gland tissue. I believe that the preservation of functioning gland tissue amounting to one-third of a normal lobe will prevent the occurrence of hypothyroidism. The advantage of leaving the posterior portion of the gland on either side is that it will serve as a buffer be-

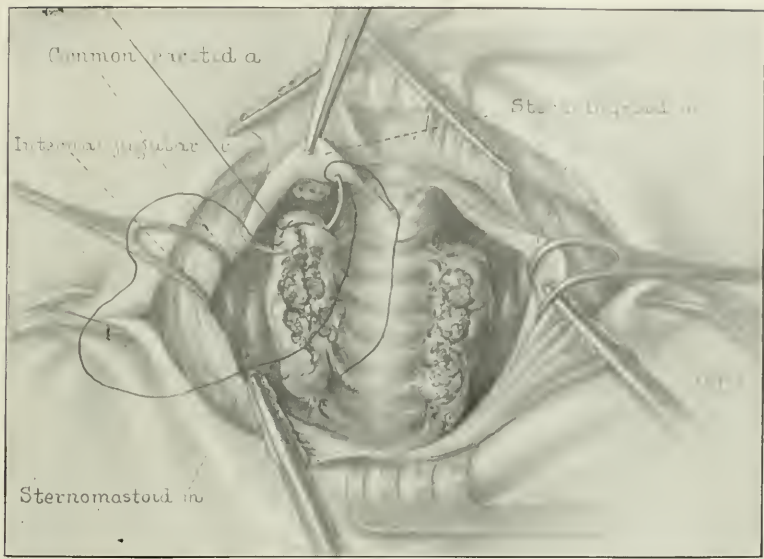


FIG. 3.—Double resection of both lobes with preservation of the posterior portion of the lobe.

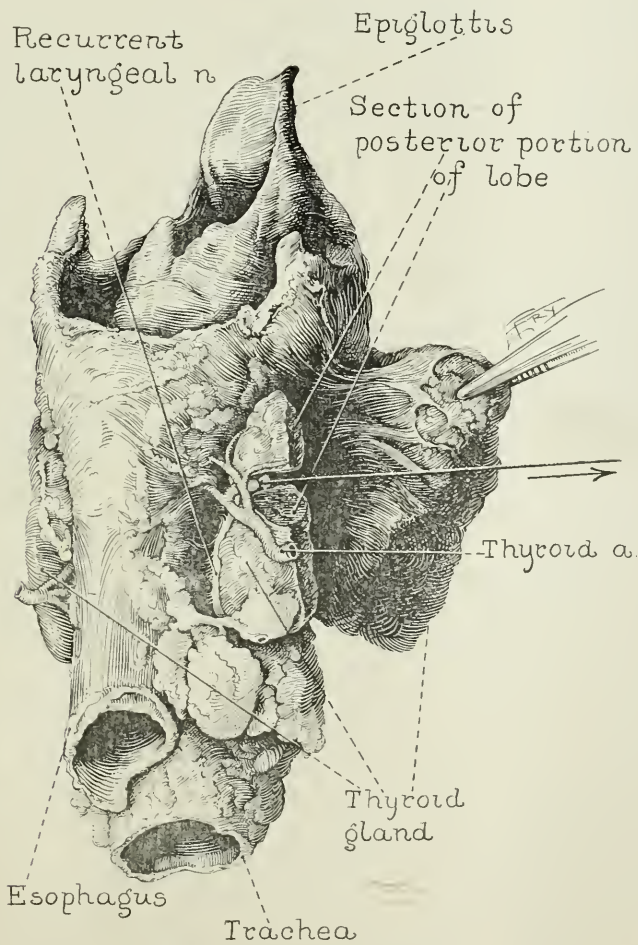


FIG. 4.—The thyroid gland sectioned and the posterior portion divided to expose the close relation of the recurrent laryngeal nerve and the branches of the thyroid artery. Traction on the vessel branch pulls the nerve forward.

tween the field of operation and the parathyroid bodies and the recurrent laryngeal nerve which lie behind.

After the resection of one lobe it is essential that the forceps be tied off before the other lobe is resected; otherwise the forceps may be pulled off accidentally, followed by bleeding, with staining of the operating field and retraction of the vessel. In checking such bleeding, injury to important structures may occur, especially if there is a retraction of the main internal branch of the inferior thyroid artery which runs up between the trachea and the inner margin of the lobe of the thyroid (Fig. 4). The cut end of this vessel will lie very close to the recurrent laryngeal nerve. If on account of the extreme friability and vascularity of the goiter, the resection of one lobe has consumed considerable time, it is often wise to conclude the operation, and if indicated, to resect the remaining lobe at a later date. However, in this series, a double resection was performed in all except six of the cases.

Crile's plan of packing the wound with gauze in patients who are obviously poor risks, has proved to be a valuable addition to the operative technic. The method used in the Mayo Clinic consists in packing the wound with two long strips, 2.5 cm., of sterile gauze. The wound is closed in the usual manner, permitting the ends of the gauze to protrude through the middle of the skin incision. A rubber tube is also inserted to drain off the serum not absorbed by the gauze. Better drainage is promoted, and certainly wound absorption is considerably lessened. The drains may be removed in from twenty-four to forty-eight hours.

POSTOPERATIVE MANAGEMENT.

In the postoperative management of patients with exophthalmic goiter, the paramount necessity of administering fluids, and more fluids, should always be borne in mind. Immediately after the operation saline or glucose (5 per cent. solution) should be given by rectum, or, if the patient is suspected to be a poor risk or is vomiting persistently, fluid should be given subcutaneously. The patient's ability to take fluid by mouth is an encouraging sign, and the prevention of gastro-intestinal upsets should always be considered in prescribing any accessory treatment. As I pointed out, food is important, but caution must be observed in pushing it too early, because of the danger of upsetting the gastro-intestinal tract. The elimination of body heat by ice bags and packs, as advocated by Crile, is valuable. Morphine should be used only to control restlessness; its too liberal use may be followed by nausea and vomiting. Digitalis is indicated in patients with fibrillating hearts, but it should not be continued at the expense of the gastro-intestinal tract. Inhalations of steam often prove very soothing in relieving excessive tracheal mucus.

In our experience, "recurrences" and a lack of that improvement normal to the majority of

patients are due to one of four factors: (1) too early resumption of muscular exertion (overwork) and mental stress, (2) infection (recurrent), (3) failure to remove a sufficient amount of thyroid gland, and (4) irreparable visceral changes. The first factor is preventable; the patient should always be advised not to resume strenuous work for a year or longer. Although the cause of the disease is not known, the frequent presence of foci and the fact that its onset often follows infections, such as influenza and tonsillitis, prove that infection must be an important factor. The elimination of all foci should be a routine precaution. In this series the onset of the disease followed influenza in 151 cases (22 per cent.). A history of tonsillitis and septic tonsils was noted in 367 patients (55 per cent.). Included in this series are fifty-six patients (8 per cent.) with recurrent symptoms of exophthalmic goiter, of whom thirty-nine were females and seventeen males.

HYPERFUNCTIONING ADENOMATOUS GOITER.

The history of a patient with hyperfunctioning adenomatous goiter differs widely from that of a patient with exophthalmic goiter. In the former the symptoms of hyperthyroidism do not occur on the average until about fourteen years after the appearance of the goiter, and their onset usually is insidious. Often the patient is unaware of the presence of the goiter and seeks medical advice only because of the visceral degenerative changes caused by the long-continued hyperthyroidism. There may be a relatively sudden onset, however, usually induced by an intercurrent infection or by the administration of iodine. The disease, as a rule, is mild, but progressive, and is seldom, if ever, interrupted by a spontaneous remission of symptoms. As pointed out by Plummer, the clinical picture may resemble either the syndrome of cardiovascular disease or that of true exophthalmic goiter.

Surgical Management. Except in the occasional patient who shows evidence of marked loss of weight and strength, associated with a high degree of hyperthyroidism, very little can be gained by preliminary surgical measures, such as ligations. In all of these patients, however, the preoperative medical measures and the strict operative requirements outlined for the patients with exophthalmic goiter are of equal importance.

MORTALITY.

From July 1, 1920, to July 1, 1921, 1,954 patients with goiter were operated on in the Clinic. One hundred and one had ligations only. Eighteen hundred and fifty-three patients had partial thyroidectomies, in 465 of whom the thyroidectomy was preceded by one or more ligations. Thirty-five patients died, a mortality of 1.78 per cent. Eight of the 996 patients with simple goiter, unassociated with hyperthyroidism, died, a mortality of 0.8 per

cent. Four of the 281 patients with hyperfunctioning adenomatous goiter died, a mortality of 1.4 per cent. Twenty-three of 677 patients with exophthalmic goiter, on whom 1,224 operations were performed (ligations and thyroidectomies), died, a mortality of 1.87 per cent., by operations, and 3.39 per cent. by patients. Fourteen of the patients (2.39 per cent.) were of the 585 who had thyroidectomy, and nine (1.4 per cent.) were of the 639 who had ligations. Five (22 per cent.) of the patients who died had recurrent goiter; they represent 8.9 per cent. of the fifty-six patients in whom the disease recurred. The deaths were due to three main causes: (1) accidental causes, three patients; (2) intense hyperthy-

roidism, seven patients; and (3) moderate hyperthyroidism plus pulmonary complications due to the patient's lowered resistance incident to the long-continued progress of the disease or to some intercurrent cause, such as hemorrhage or infection, twelve patients. In one patient the operation failed to check the progress of the disease. The deaths due to severe hyperthyroidism are preventable to a large extent; either an error is made in selecting the patient for operation or in selecting the operation for the patient. If patients who are recognized as poor surgical risks are accepted for operation, a higher mortality rate must be looked on as unavoidable (Tables I, II and III).

TABLE I.—TWELVE HUNDRED TWENTY-FOUR OPERATIONS ON 677 PATIENTS WITH EXOPHTHALMIC GOITER.

	Operations	Patients	Males	Females	Average							Per cent			
					Age, years	Durations of goiter, months	Duration of hyperthyroidism, months	Loss of strength, graded 1,2,3,4	Loss of weight, pounds	Pulse rate	Basal metabolic rate, per cent	Vomiting	Diarrhea	Edema	Previous thyroidectomy
Group 1 Primary * thyroidectomy	212	212	42	170	36.5	43	33	1.40	14	111	+36	21	29	30	47
Group 2 One ligation followed by thyroidectomy	264	133	32	101	36.5	27	15	1.65	19	117	+51	22	25	31	8
Group 3 Two ligations, rest, and thyroidectomy	577	240	84	248	35.6	33	17	2.22	22	124	+63	36	31	46	1
Ligations **	171	92													
Averages	1224	677	158	519	36.2	35	22	1.75	18	117	+50	28	28	36	56 8%

* The term "primary thyroidectomy, in this paper denotes the resection of the thyroid gland without preliminary surgical preparation. It will be noted that forty-seven patients with recurrent exophthalmic goiter are included in this group.

** Ninety-two patients have not yet returned for thyroidectomy.

TABLE II.—TWO HUNDRED EIGHTY-ONE OPERATIONS ON 281 PATIENTS WITH HYPERFUNCTIONING ADENOMATOUS GOITER.

Operations	Patients	Males	Females	Average				Per cent		
				Age, years	Duration of goiter, years	Duration of hyperthyroidism, months	Basal metabolic rate, per cent	Edema	Cardiac dilatation	Auricular fibrillation
281	281	39	242	46.7	15.5	2.2	+34.1	37	26	7

TABLE III.—HYPERFUNCTIONING ADENOMATOUS GOITER—DATA RELATING TO FOUR DEATHS.

Case	Sex Age	Duration of goiter, years	Duration of hyperthyroidism, years	Loss of weight, pounds	Loss of strength graded 1, 2, 3, 4	Pulse	Basal metabolic rate, per cent	Edema	Fibrillation	Myocardial degen- eration, clinical diagnosis	Death after operation	Clinical cause of death	Findings at necropsy
335687	F 56	12	.25	?	2	128	+50	+	+	+	36 hrs.	Hyperthyroidism; Myocardial degeneration	Chronic nephritis; hemorrhage in endo- cardium of the left ventricle
361539	F 60	20	1	6	1	108	+20	+	-	-	56 hrs.	Pneumonia	Bilateral lobar pneumonia
361356	F 61	30	10	38	3	104	+37	+	+	+	38 hrs.	Myocardial degeneration	Myocardial degen- eration; broncho- pneumonia
323864	F 69	2	2	?	3	118	+49	+	+	+	7 days	Pneumonia	Bronchopneumonia; nephritis; arterio- sclerosis (marked)
Averages	Age 61.5	16	3.3	22	2.25	116	+39	100%	75%	75%			

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DISCUSSION OF PAPER OF DR. PEMBERTON.

DR. A. C. PORTER, Boston, Mass.: I will not read a paper, as the analysis of my individual cases is not yet completed. With Dr. Pemberton's conclusions, I am in entire agreement, except that I consider the x-ray a more valuable method of treatment than he apparently does. At the Massachusetts General Hospital, for the last two years, we have had a thyroid clinic, represented by two radiologists, two medical men, and two surgeons. In this clinic is discussed each individual case, in an endeavor to decide which form of treatment is the most beneficial. I believe we arrive, in the majority of cases, at almost a unanimous opinion.

Dr. Means has devised a thyroid chart, examples of which I will pass about. For purposes of tabulation, this has been found very valuable, for at a glance one can notice the changes in the pulse rate, which is marked in red: of the weight, which is marked in green, and of the metabolism, which is in black. You can readily determine the result of one or two years' treatment, by the months. It gives the dates of the x-ray treatments, if any, and in addition, shows whether the patient is at rest, partial rest, or leading a normal life. The chief symptoms and signs are quickly noted. There is, furthermore, recorded the duration and kind of medical treatment, the dates of the surgical operations, if any, the laryngoscopic examination, before and after operation, the pathological report of the gland removed, and the end-result to date.

On the whole, our attitude has been favorable to x-ray treatment, rather than operation in the mild cases of Graves' disease, but we are less inclined to so treat toxic adenomata. In severe forms of Graves' disease, we have, at first, advised complete rest, with appropriate drugs, and x-ray treatment, until the patient has become stable. By this, I mean that the pulse, which usually decreases after rest, reaches a constant level, and the metabolism ceases to fall. Then the decision is made between a continuance of such treatment or operation. We feel sure that x-ray will cure certain cases. On the other hand, there have been instances where no apparent im-

provement followed x-ray treatment, even continuing for one year and a half. In two of these cases, preliminary ligation and subtotal thyroidectomy caused rapid improvement and normal metabolism.

The question as to whether previous x-ray treatment makes operation more difficult is not yet determined. Occasionally, without any such treatment, we find definite adhesions of the gland capsule.

When symptoms have recurred after hemi-thyroidectomy, success often has followed radiation of the other half of the gland.

Myxedema undoubtedly in one case and probable in another, followed x-ray treatment, and there are two cases of abnormally low metabolisms with markedly increased weight, but without other symptoms, which have occurred after thyroidectomy.

Our real problem, yet to be determined, is the proper treatment, in moderately severe Graves' disease, in which there is some, but probably not great risk from operation. In general, if we have erred, it has been on the side of favoring x-ray treatment, in such cases. We feel convinced that ligation of the superior thyroid vessels is of benefit, and it is usually followed by some gain in weight, a lowering of the pulse, and a fall in the basal metabolism. Very rarely, however, has ligation alone, or combined with x-ray, produced a cure in severe cases, without a subsequent thyroidectomy.

In attempting to analyze the end-results of those cases, which are reported to date, I am struck with the connection between neuroses, psychoses, and Graves' disease, but am yet unable to determine the causal relation among them. It seems as if a group of patients were congenitally, temperamentally and nervously unstable, and upon this condition Graves' disease became grafted.

I could give many instances where, after operation, which was not particularly dreaded, weight was markedly gained, the pulse was approximately normal, the tremor disappeared, the metabolism was reduced to normal limits, but the neurotic symptoms did not disappear. Several of these patients required sanatorium or even treatment in asylums for mental diseases. I have also been struck with another group of cases, in which other chronic conditions prevent cure: such as different heart lesions, arteriosclerosis, and diabetes.

The menopause, coinciding with a full-grown Graves' disease, offers symptoms which are rather complex, and of rather doubtful prognosis. In climacteric Jewesses, owing to lack of control, the op-

erative risk is bad. By judicious use of rest, x-ray treatment, and operation, the mortality can be reduced to a low figure. I am sure that ultimate subtotal thyroidectomy offers a minimum risk of myxedema, and our greatest guarantee for rapid and permanent cure.

In regard to the technique of the operation, preliminary superior thyroid ligation is usually performed under local anaesthesia, or gas and oxygen, at which time one artery, or both, are ligated, and the vessels cut between the ligatures. Considerable induration often follows this small operation, and occasionally infection.

There is no doubt that a collar incision is best, after which, if the thyroid is large, the sternohyoid and thyroid muscles can be divided transversely, and the sternohyoid, without harm, may be cut through its inner half. Hemorrhage, although often troublesome, is very rarely serious. The chief danger of the operation, *per se*, is injury to the recurrent nerves. This results commonly from four causes:

1. Injury to the nerve in some way, where a large lobe must be delivered by blunt dissection from the superior mediastinum.

2. Traction of the lobe to the median line and upward stretching the nerve.

3. Clamping the nerve, particularly in lobectomy, in an endeavor to anticipate or stop hemorrhage from the inferior thyroid vessels.

4. Where the nerve is avoided, with all possible care, but a hemostatic forcep or ligature slips. Profuse hemorrhage occurs, and in stopping it, the nerve is clamped in a bloody field. I have several times noticed this, from a change in the patient's breathing, or in the voice, the patient being under local anaesthesia.

More recently, an attempt has been made to leave the posterior part of both lobes intact, but even then there is possible injury to the nerve, where hemorrhage from remaining lobes is controlled by deep stitches or by means of a hemostatic forcep.

Fortunately, even complete paralysis of one nerve, so far as the voice is concerned, is compensated for by the other vocal cord, in from six months to a year. Unless actual laryngoscopic examination is made, the absence of hoarseness does not preclude such injury, which I am convinced is more common than surgeons believe.

Another lesion of the cords, for which no really adequate explanation is given, is bilateral abductor paralysis, in which both vocal cords lie rigid, and very close together. The voice, although high-pitched, is often not hoarse. The chief symptom is stridor upon exertion, and always, in the background, is the danger of edema, and the sudden necessity of tracheotomy. I have seen in all five such cases. One of them died early in an attack of influenza; in two, tracheotomy was performed; one of these had a complication of moderate infection, and the other a very considerable post-operative hemorrhage into the wound. In my paper, soon to be published, I shall discuss, more in detail, this rare, but very serious complication of thyroidectomy.

At the Massachusetts General Hospital, we are slowly working out, by means of a method including rest, x-ray and operation, a way of treating Graves' disease, which is steadily decreasing the mortality. The error of the past has been a too early radical operation, instead of operation in one, two or three stages.

DR. J. H. MEANS, Boston: *Mr. President and members of the New England Surgical Society*—I want to thank you for asking me to take part in the discussion. I think there is almost nothing in medicine that is more uncertain than the proper way to treat exophthalmic goiter. I have two quotations from the literature which show what a tremendous

divergence of opinion there is in current day literature. For example, Sistrunk of the Mayo Clinic says: "Fortunately and unfortunately, patients improve when treated medically; fortunately, because patients unfit for surgical treatment may improve to such an extent that they may become fairly good surgical risks; and unfortunately, because a knowledge of the fact that improvement occurs under medical treatment leads many practitioners to use only medical measures in the management of exophthalmic goiter, apparently without fully realizing the sad state to which a large percentage of the patients thus treated will be ultimately reduced."

Now here is an opinion which is diametrically opposite. It is by McCarrison, who says: "With regard to the treatment of Graves' disease by surgical interference with the thyroid gland there are two questions which demand an unhesitating answer in the affirmative before this treatment can be admitted to be justifiable: (1) Is Graves' disease the direct outcome of the flooding of the organism with thyroid substance as it is stated to be by Biedl? (2) Does operative interference with the thyroid gland effect what medical and surgical treatment cannot do? With regard to the first the answer has been given. . . ; it is quite definitely in the negative." With regard to the second, he goes on to say the average percentage of cures by twenty-six different operators "is not a sufficient improvement on medical treatment to justify an operative mortality which . . . ranged from 1.3 to 30%."

With regard to the question of infections, McCarrison believes that exophthalmic goiter is an infectious disease. I am not sure whether he is correct, but at any rate he points out other things than the thyroid which need attention, which is a healthy view to bring up. The only point I want to make is that although modern surgery is producing good results, after all, surgery of the thyroid is not the ideal treatment because we are not removing the cause of the disease. I don't believe that the cause of the disease is in the thyroid. Surgery removes perhaps a part of the disease. We have been working with x-rays at the Massachusetts General Hospital, and some of the cases do well with that, but only about 50% do well. What the x-ray does we don't know; it does something to the thyroid because once in a while we get myxedema. You also occasionally get it after strumectomy. Myxedema can be cured by giving thyroid by mouth. By irradiation one can treat not only the thyroid but the thymus as well. And, I believe, that the thymus has something to do with Graves' disease. But that procedure, like surgery, is not acting on the cause of the disease. What we need is not to be content with the excellent results of surgery but to strive further to find the cause of the disease and not simply treat the result which perhaps the thyroid gland is. I think that Dr. Cannon's work is stimulating. He got a disease in cats which resembles Graves' disease, by grafting the phrenic nerve into the sympathetic chain. He got the cardinal symptoms of exophthalmic goiter, and there the cause of the disease wasn't in the thyroid but certainly outside.

DR. FRANK H. LAHEY, Boston: The thyroid question always seems to be a burning one. You can raise an argument anywhere on this question. This is due to the fact that it is as yet far from solved.

Regarding metabolism, I agree with Dr. Pemberton that it represents the degree of toxicity, but only approximately, however.

In respect to its indicating a safe outcome with operative procedures when low, we have had a case similar to the one reported by Dr. Pemberton, published in *Maine Medicine*, and are sure that its prognostic value, when considered alone, is very un-

reliable. It must be taken into consideration together with other factors, such as the cardiac reserve, length of the disease and general clinical picture of activity of the disease.

We are very much interested in the cases which are clinically improved by ligation, gain weight and become good risks, and endure the final and complete operation well, but still show an increase rather than a drop following ligation. We have no explanation for this which is satisfactory and convincing to us.

We do not use local anaesthesia in the complete operation. We did a series with it and gave it up. We believe it takes too much out of these nervous and excitable patients. That which is desired is the reverse of excitation, which is the rule with local anaesthesia. We employ scopolamine, morphine and gas oxygen.

We take them to the operating room and give them gas,—if they are very toxic we send them back to the ward to see how much they react to this. If they react badly we inject boiling water until they will stand ligation. If able to, we tie one pole, send them back to the ward, and if they are sick enough to worry us we take them back to the operating room four times, tying one pole at a time. If then we have a background of five trials with a graphic chart of the pulse during the operation, we think that they will stand the final operation, or from this background we can tell whether or not they will stand it. Of course, this is the procedure only in the doubtful cases. There is no doubt in our minds that these patients do acquire a tolerance by repeated operative procedures.

We have reached the place where we do not worry about operative deaths, as we are able to avoid these. We worry now about the uncertainty of the degree of post-operative reaction, and it is this uncertainty which makes us extremely conservative in the surgical measures which we employ in this disease.

X-rays: I cannot say anything yet regarding x-ray. We have treated a small series of cases at the Boston City Hospital, and feel that we have not accomplished enough to report yet one way or the other.

Why do operative failures occur? Because patients are operated upon who are suffering from neurosis and not hyperthyroidism; also because enough thyroid tissue is not taken out, and, perhaps, there exists coincidentally, hyperthyroidism and a neurosis of the circulatory asthenic type.

Book Reviews.

Massage and Medical Gymnastics. By EMIL A. G. KLEEN, M.D., Sjövik, Saltsjöbaden. William Wood & Company, Publishers.

The book on *Massage and Medical Gymnastics*, by Dr. Kleen, is a revised and improved edition of his textbook which has been in use more than a quarter of a century. In addition to the original book there is a section by Arvedson on Ling's medical gymnastics, by Zander on the mechanical method of medical gymnastics, and a chapter by Dr. Patrik Haglund on the use of medical gymnastics and massage in orthopedic surgery.

The book has the advantage not only of being written by a doctor of medicine, but has been translated by a doctor of medicine, connected

with the Chelsea Physical Training College in England. It contains also a foreword by Mr. R. C. Elmslie, a distinguished London surgeon, defining the field of physical therapeutics, especially in relation to orthopedic surgery, and commenting on the need of the education of the medical profession in the elements of rational physical treatment, and making the masseur understand that he is a skilled worker in a particular branch of therapeutics and not omniscient in all branches of medicine and surgery.

Dr. Kleen has much criticism to make of the methods of training in the official schools of massage and physical exercises in Sweden, and he deplores the result of the system which has led to the setting up of a class of gymnasts possessed of an official diploma, who consider themselves qualified to treat without medical consultation or supervision.

The book opens with a critical introduction giving a history of massage and the criticisms above referred to, following which comes a careful consideration of the meaning of massage and its technique, therapeutic effects, and contraindications to its use. These are written from the point of view of a doctor and the physiology of massage is given. Medical gymnastics have been considered in the same way with regard to technique, effects, and contraindications, and then the author passes to a detailed account of Swedish gymnastics, giving their application to abnormal conditions. Then follows an admirable article by Haglund on the treatment of wry neck, lateral curvature, joint deformities and certain congenital conditions. The article on scoliosis is particularly noteworthy, in calling attention to the fact that the treatment by gymnastics has a limited applicability and cannot be regarded as the cure-all so often advocated. He warns that it is not well for people with no medical training—masseurs, gymnasts, etc.—to undertake the treatment of other than light cases, but that in all severe cases the responsibility should be entrusted to the doctor. The next chapters deal with the application of medical gymnastics to eye, thoracic and abdominal organs, uro-genital apparatus, and the nervous system, finishing with a consideration of disorders of nutrition.

The book is well arranged and well balanced, and although the pictures are poor the subject does not require pictures giving detail, and they serve well enough. A detriment to the book is that hardly any references are given, and if one were looking into the physiology of massage in this book it would require a great deal of labor to verify the references. The translation is well done, and the book is to be recommended to those wishing to familiarize themselves with the present-day status of massage and gymnastics from a scientific and rational point of view.

Pulmonary Tuberculosis. By SIR JAMES KINGSTON FOWLER, K.C.V.O., C.M.G., M.A., M.D., F.R.C.P., D.Sc. (Hon.) London: Macmillan & Co., Limited, St. Martin's St.

It is a very real privilege and pleasure to read and review this book by Sir James Fowler. It is a small volume of 284 pages, with excellent paper and print. It is, perhaps, a little unfortunate that the print is so small. The contents, however, are of such a high degree of excellence that one can easily overlook this minor defect. There are over 50 excellent illustrative diagrams, micro-photographs and plates. His references are largely to English and American authors, the preponderance naturally in favor of the former. It is somewhat refreshing to see that there are not elaborate lists of references to German writers. As he frankly states, "This book may here and there be found to differ somewhat as to style from that generally adopted in serious medical works of the present day, in which the writers, through many dreary pages, unrelieved by a single personal touch, are wont to cite on one side of a disputed point five German authors" There is in this book a personal touch which is so much lacking in many volumes equally and perhaps more erudite, but which lose much of their value because of this lack.

His review of the history of tuberculosis is full of quotations and striking passages from the works of the men to whom he refers. His chapter on the "Rôle of Heredity in Pulmonary Tuberculosis," is interesting and fair to both sides. The conclusion which he reaches is, perhaps, unsatisfactory, but the only possible one, namely, "that the attempt to state with scientific precision the influence of the hereditary factor in pulmonary tuberculosis is doomed to failure." In discussing the "Rôle of Infection in Pulmonary Tuberculosis," he makes his points very effective by giving a series of questions and answers purporting to be a dialogue between a patient and physician. This is a novel and striking way of teaching.

Para-tuberculosis is the name which he gives to scrofula and bovine tuberculosis and non-pulmonary forms of tuberculosis of various kinds. On the whole, this term is rather a good one. He does not put much faith in the theory that childhood infection with bovine tuberculosis conquers much of the immunity from human strains later on. In discussing the incidence of tuberculosis in the population of the United Kingdom, he rather shocks us by scoffing at the idea that upwards of 70-80 per cent. of normal, healthy adults are already infected with tuberculosis. He believes that this percentage is not over 9 per cent. He bases this belief on the experience of certain native troops from India, Africa, and other distant places, who, according to his

way of thinking, became infected with tuberculosis while in barracks and dugouts in France. I do not feel that this line of argument is a good one or a tenable one in the slightest. I am sure that the majority of American students of this subject would agree that 9 per cent. is altogether too low a figure for the general incidence of tuberculosis.

In his chapter on anatomy of the thorax, he emphasizes the importance of knowing the exact location of the various lobes of the lungs. In "Physical Diagnosis," he calls attention to the normal defects between the right and the left apex. He goes into great detail as to the different varieties and forms of râles, more so than is wise or necessary. I am strongly inclined to believe that much time and thought are wasted in trying to differentiate between different varieties of râles and to read various conclusions from such differences.

He objects to the terms "open" and "closed" tuberculosis, and believes that the terms "positive" and "negative" tuberculosis should be substituted.

The one real disappointment in this book is the scanty attention paid to the disease of the intrathoracic glands. Less than three pages are devoted to this subject, which is entirely out of proportion to its importance. Personally, I am inclined to believe that a sound and thorough discussion of the subject of juvenile tuberculosis is more important than any other phase of the disease.

He calls attention to the difficulties in diagnosing a case of arrested fibroid tuberculosis, particularly when it occupies only a small area and is surrounded by emphysematous lung. In discussing chronic tuberculosis of the lungs, he gives an interesting conversation between a pathologist and a tubercle bacillus as to why the tubercle bacillus elects the apex instead of other parts of the lungs, etc. He takes up five modes of onset: (1) Insidious; (2) Bronchial Catarrh, followed by Emphysema; (3) Pleuritic Onset; (4) Haemoptotic Onset; (5) Laryngeal Onset.

He devotes a chapter to "Aneurysm of the Pulmonary Artery" which he calls a common and fertile source of hemorrhage. There are many of us who, perhaps, would not agree with this. His chapter on hemorrhage and treatment, however, is excellent.

His opinion as to the value of the x-ray in the diagnosis of pulmonary tuberculosis is likewise sound and sane. One of the best features of this book is his remarks on prognosis. This he starts with a condensed conversation of his opinion on this subject by the following statement: "No fool ever gets rid of tuberculosis of the lungs." This chapter alone makes the book well worth reading.

Under climatic treatment he makes another statement with which I at least would not

agree, namely, "Never advise a patient to go to any place which you have not visited yourself." In England, where distances are not great, this may be a wise precaution. It would be interesting to know what would be Sir James' reaction were he practising in this country, where time, distance, and carfare would render such action on his part as rather futile. He believes that more patients have done themselves harm by taking up play after too short an interval of rest than they have by taking up work. He is a strong believer in the graduated exercise and autoinoculation as carried on by Marcus Paterson.

His chapter on tuberculin in diagnosis and treatment is short and to the point. It is evident that he does not approve of the use of tuberculin either for diagnosis or treatment. With this I am in hearty accord as far as pulmonary disease is concerned.

His final chapter is entitled "*Obiter Dicta*." This review cannot be better ended than by quoting some of these:

"The mortality statistics of the Allied Armies in France furnish some difficult problems for those who do not believe in the importance of infection as a factor in the spread of pulmonary tuberculosis."

"The percentage of the population of Great Britain who carry in their lungs evidence of having been, at some period of their lives, the subjects of tuberculosis which underwent spontaneous arrest, is 9 per cent., not 70, or 80, or 90 per cent."

"A knowledge of the relation of the lobes of the lungs to the chest walls is of great advantage in the diagnosis of pulmonary tuberculosis."

"The lesions of pulmonary tuberculosis do not 'open' and 'close' like a mollusc."

"The collection of pathological material and the reading of laboratory reports will never make a physician."

"No member of the medical profession should be paralyzed because the laboratory boy is at dinner."

"Para-tuberculosis, as a name, is preferable to bovine tuberculosis. Its use will, in time, lead writers to draw more distinct pictures of the clinical features and morbid anatomy of the disease as it shows itself in the human body, whereas the retention of the word bovine accentuates the fact that it has come from an ox."

"A tuberculosis dispensary that has become a 'tuberculin' dispensary has become a very dangerous place."

"A diploma in tuberculosis for those who are to deal with tuberculosis is just as necessary as a diploma in tropical medicine for those who are to treat tropical disease."

"A stethoscope is easier to carry than a cardiograph or an x-ray installation."

"Every General Hospital should have Diagnosis wards."

"Probably since the beginning of the world, it was never so dangerous to be alive as at the present time."

"No fool is ever cured of tuberculosis of the lungs."

I would strongly advise everyone interested in tuberculosis and in this phase of internal medicine to read this book.

Studies from the Rockefeller Institute for Medical Research. Reprints, Volume xxxix, 1921, 662 pages.

The reputations of the various contributors make it unnecessary to praise these articles, and therefore this review will try to indicate the gist of such of them as seem to have a clinical bearing. In general, the greatest number listed in the table of contents are in the field of pathology, namely, 19, then diabetes with 7, then chemistry with 4, and miscellaneous, 13.

The articles which happened to engross the reviewer (an internist) were F. M. Allen's seven experimental studies in diabetes, Series II. These cover 137 pages, or about a fifth of the entire volume, a mass of intricate data on dogs. The discussions and summaries, however, are of the greatest interest in relation to man. The same comment may be made to the ten fascinating studies on experimental pneumonia in monkeys, by F. G. Blake and R. L. Cecil, recently published from the same institution.

The present Series II deals with the "internal pancreatic function in relation to body mass and metabolism." Carbohydrate assimilation was altered in many ways, with results of which the following seem worth notice.

1. Though approximate information is derivable from assimilation tests, neither the feeding of glucose nor of a mixed meal is necessarily decisive concerning the precise stage of an animal as respects diabetes.

2. The pancreatic element is not present in the superabundance ordinarily supposed—a mere "factor of safety" is not demonstrable; "on the contrary, there must be frequent occasions in ordinary life (such as the eating of a box of candy by a human individual), when the full power of this tissue (islands of Langerhans) must be exerted if the assimilation is to be strictly normal."

3. The curve of falling tolerance is not a straight line; that is, tolerance is lost for a time gradually, then abruptly, after reaching the sharp and definite point at which diabetes begins (experimentally). "An animal may be brought so close to the verge of diabetes that it is brought on by the removal of as little as 0.1 gm. additional tissue."

4. "When considerable masses of active tissue, especially muscle, are suddenly lost, as in removal of a limb by amputation, the effects upon the assimilation are negligible compared with those of similar losses of weight produced by undernutrition. It may, therefore, be concluded that the effects of undernutrition are not due to a reduction of active protoplasm, but rather to a reduction of food supplies and metabolism."

5. "Undernutrition should be continued to the point of relieving the pancreatic function from overstrain revealed by the most delicate tests, particularly hyperglycemia."

6. "The fundamental value of exercise is probably as a form of undernutrition. The combustion of calories by exercise, however, is not as beneficial as omitting them from the diet, and loses its potency at a stage (increasing severity) when dietetic undernutrition is still effective . . . the thorough dietetic treatment thus involves two changes from former practice: On the one hand, heavy exercise, as advocated by the earlier clinicians for burning up surplus sugar, is discouraged; on the other hand, the hygienic benefits of lighter exercise are made available to many patients to whom exercise was formerly forbidden."

7. "The impression that diabetic patients do worse in cold weather is probably explainable by the discomfort of chilliness when they are undernourished, the tendency to take more food, and, sometimes, by the limitation of exercise. These may be important from a practical standpoint, but any direct influence of climate upon diabetes must be slight, if it exists."

8. "Experimental evidence makes it easily comprehensible that . . . glycosuria may be delayed to a time when there is no plain clinical connection."

9. "A distinct lowering of carbohydrate assimilation was shown during pregnancy . . . regarded chiefly as a toxic manifestation."

Turning now to other topics which have promise of practical, as well as pure scientific interest, one notices the following: A mechanical measuring instrument for aliquot portions of sterile or other liquids, prophylactic inoculation against yellow fever, gigantism and the anterior pituitary, induced atrophy of tonsils by x-ray leucocytic response in tuberculous infection, a new test for protein in the spinal fluid, preservation of stock cultures of bacteria, food requirements of children, determination of chlorides in plasma, transmission of measles to monkeys, and excretion of urea.

Aids to Medicine. By BERNARD HUDSON, M.D. Third Edition. Pp. 370. New York: William Wood and Company. 1921.

This little book is disappointing from the fact that, while it contains much excellent, con-

cise description, it reflects in the main the medical knowledge of twenty years ago and omits, or slurs over, many points which represent important recent advances. For instance, under Typhoid Fever, the first disease discussed, no mention is made of diagnosis by blood culture, upon which we in America now so largely depend for early and conclusive proof. The diet in typhoid fever is still described as "mainly milk," without reference to the desirability of furnishing more nearly adequate caloric values. The serum treatment of meningitis and the salvarsan treatment of syphilis are given only perfunctory mention in such a way as to suggest that the author has had little or no personal experience with them. The book may be of some value to very elementary students who wish to make a rapid survey of the field which they are beginning to study, but cannot be recommended to students who are approaching their examinations for graduation.

Health Education and the Nutrition Class. By JEAN LEE HUNT, BUFORD J. JOHNSON, Ph.D., EDITH M. LINCOLN, M. D. New York: E. P. Dutton Company. 1922. 281 pages.

The Bureau of Educational Experiments presents, through the three authors of this volume, a worth-while record of an experiment in health education as worked out in a large New York public school, using the nutrition class as a point of departure for the work. Here is offered a volume which should be of value as a work of reference to others engaged in this field of endeavor.

In addition to the tables and statistics, with which the book is liberally provided, the following paragraphs suggest its scope and findings.

"One of the most important things shown in this whole study is how the nervous systems of children of good nervous stock can resist malnutrition of an extreme degree extending over three years.

"Aside from extreme cases of malnutrition, of prolonged hunger or starvation which, like other pathological states, would cause disintegration, we cannot say that malnutrition, irrespective of other factors, produces or runs hand in hand with mental defectiveness. In many types of mental processes, the reactions of the undernourished child are equal or superior to the average of his age group. The traits in which he may prove less capable seem to be resistance to fatigue under response to uninterrupted or complex stimuli, and exaggerated emotional responses under normal stimulation. A problem worthy of study both for the undernourished and for the hearty child is fatigue, with special reference to the period of recovery.

"In connection with such experiences we

must appreciate that the program that educates to the importance of caloric intake, without special emphasis on conceptions of balanced feeding and vitamin intake, is inadequate.

"Our initial program for diet and school feeding especially emphasized the importance of caloric intake, and in this followed the general lines prescribed by Dr. Emerson. Insistence on the elimination of tea and coffee, and on milk as an essential of the child's dietary, however, adds to his program some additional elements of importance, and the emphasis on cereal foods is a particularly practical method of supplementing the dietary with inexpensive carbohydrate foods, with the least possible danger to interference with the family budget and customary menu. Our experience seems to indicate the insufficiency of this simple program, for a community of the kind in which we were working. Acquaintance with the dietaries of the homes shows lack of knowledge as to balanced diet, lack of knowledge as to vitamins, their place and importance, as to fats and the ability of young children to digest them, as to the peculiar properties of milk, and as to the undesirability of condiments, especially in the diet of the child. Incomplete as present knowledge in regard to food properties must be admitted to be, very considerable progress in this field of science has been made in recent years, and any program of health undertaken in the school must take cognizance at least of the best authenticated facts of recent laboratory experiment.

"The efficient program of health education must recognize the primary importance of nutritional status as a basis for estimating general physical condition among children.

"Results of the health program should be evaluated currently through individual records of growth increment and nutritional status.

"The resources of the school for supplying the chief provisions essential to the success of an educational health program are greatly superior to those at the command of any other agency.

"The preventive program of health education must be basic, an integral part of the school's general thinking, administration and equipment.

"The school can greatly strengthen its educational practice by making the adjustments in its equipment and procedure demanded by the health program."

The Glands Regulating Personality. By LOUIS BERMAN, M.D., Columbia University. New York City. Macmillan Company. 1921.

Berman presents two hundred and ninety-one pages of mingled fact and fancy, written in the somewhat emotional futurist style of a best seller, and seemingly offered to titillate the palate of the laity rather than to advance the

cause of scientific medicine. The following extracts are illustrative:

"'Man, know thyself,' said the old Greek philosopher. Man perforce has taken that advice to heart. His life-long interest is his own species. In the cradle he begins to collect observations on the nature of the queer beings about him. As he grows, the research continues, amplifies, broadens. Wisdom he measures by the devastating accuracy of the data he accumulates. When he declares he knows human nature, consciously cynical maturity speaks. Doctor of human nature—every man feels himself entitled to that degree from the university of disillusioning experience. In defense of his claim, only the limitations of his articulate faculty will curb the vehemence of his indictment of his fellows.

"Think up objective physiologies in which your life and mine become a series of concatenated influence and compound reflexes. Play with words like the concentration reflex when you mean idea, and the symbolic reflex when you mean language. But your most rigid nomenclature will never abolish the mystic personal purpose in the equation, no matter how low the step in the animal series to which you descend. The declaration that a man is dominated by certain glands within his body should not be taken to give aid and comfort to those who would banish mind from the universe.

"Already the outlines of a differential anatomy, and a different physiology and a differential psychology, which will explain to us the unique in the constitution, the temperament and character of an individual, emerge. It is worth while, before proceeding to the details, so valuable to a society which would become rational, to summarize the general principles emerging, expressing the directing powers of the ductless glands over the individual. They may be regarded as the present postulates of a new science of the whys and wherefores separating and setting apart, as so recognizably distinct, those peregrinating chemical mixtures: men and women.

"The internal secretions are the most hopeful and promising of the reagents for control yet come upon by the human mind. They open up limitless prospects for the improvement of the race. A few hundreds of investigators are engaged upon their study throughout the world.

"That is one of the ironies of our contemporary civilization. A concerted effort at the task of understanding them, backed by the labors of tens of thousands of workers, would, without a doubt, accomplish as much for humanity as the vast armies and navies that consume the substance of mankind. If we could not obtain Utopia then, we might at least, by abolishing the subnormals and abnormals, who constitute the slaves and careerists of society, render the human race less contemptible and more divine."

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THE WORKMAN'S COMPENSATION LAW.

THE time has come when the members of the medical profession of this Commonwealth must take account of stock and determine whether it is worth while to act as a unit in protecting such rights as they have under the Workmen's Compensation Act, or taking things for granted, permit valuable rights to be taken away from them. Notwithstanding broad and liberal rulings by the Industrial Accident Board, the scope of the law is gradually being narrowed by Supreme Court decisions and both the rights of physicians and their patients are being jeopardized.

It is not so long since the members of the profession had their attention directed to the narrow interpretation of the medical provisions of the law in Huxen's case, a full report of which was printed in the columns of this JOURNAL. In that case the Court in effect held that however serious and unusual a case might be, medically, when an employee was able to walk to the office of his physician, there was grave doubt as to whether the case could longer be considered unusual and the insurance company liable for the services of the physician.

The exact language of the Court in Huxen's case, in part, follows:

"The obligation to provide such (medical)

attendance as an absolute duty is confined to two weeks after the injury. It is manifest that in the aggregate there must be many cases where medical attendance may be required for a longer period. It is not in an ordinary case requiring longer medical attendance that the discretion of the Board may be exercised to charge this attendance to the expense of the insurer. It is only in 'unusual cases' that they may do so. There would be grave doubt whether a case where the employee is able to go from his home in Cambridge to an office in Boston could be so unusual as to be within the purview of the Act."

Now, as will be noted by a perusal of the Golden case, the Court has once more overturned a decision of the Industrial Accident Board awarding something like \$600 to a masseuse, on the ground that the services so rendered were not actually under the "control and direction" of a physician. Following this decision, some insurers have felt encouraged not to pay for such services as massage, baking, etc., bills for ambulance hire, amounts expended by employees in their journeys to and from insurers' offices, or clinics, to receive medical treatment, and have generally adopted a narrower attitude towards medical charges than prior to the handing down of this decision.

The decision of the Court in the Golden case also indicates that a physician, unlike an employee, has no right to a review of his decision by the full Board. In other words, while he has the right to present the evidence in his case to a single member of the Board, that single member does not make a decision from which he might claim a review, if deemed expedient, but the member merely acts as a medium through which the evidence is reported to the Board, and the full Board, without hearing the doctor, makes a decision on the bare record.

To remedy this state of affairs, several bills have been introduced which will fully and properly safeguard the rights of physicians and their patients, the employees of the State. In addition to bills which will remove the effect of the decision of the Court in both the Huxen and Golden cases, other amendments have been offered which will provide for the payment of compensation and medical charges for both personal injury and disease; giving full-time medical treatment; doing away with the provision in regard to "unusual cases"; and other perfecting amendments which will give the medical profession the protection to which they are reasonably entitled.

The legislative committee of the Massachusetts Medical Society will have the various bills before them for consideration and, of course, will be delighted to have the coöperation of members of the profession in the various sections of the State. Would it not be well for all the members to interest themselves in this new

legislation and advise the legislative committee how the land lies in their respective districts?

THE GOLDEN CASE AND ITS RELATION TO PHYSICIANS.

We print below a copy of the decision of the Industrial Accident Board and of the Supreme Judicial Court, reversing the Board's decision, for the information of the medical profession. A perusal of this decision will indicate that the Court is of the opinion that physicians are entitled only to present their evidence, in any given case involving their fees, to a Board member, without right of review by the full Board, the single member reporting the evidence for decision to the full Board. This is a situation which should be remedied by appropriate legislation, as a physician should have the same right of review as an employee. The decision also holds that services rendered by a masseuse are not medical services, at least unless such massage is rendered by the physician, or under his direction and control. The record follows:

WORKMEN'S COMPENSATION ACT, INDUSTRIAL ACCIDENT BOARD, BOSTON, MASSACHUSETTS.

M.J.R., Case No. 9980.

Newton Golden, Employee.

Worcester Electric Light Co., Employer.

Employers Liability Assurance Corp., Ltd., Insurer.

Gertrude R. Doyle, Masseuse.

Findings and Decision of the Industrial Accident Board. The above case, the request of the masseuse for the approval of her fee for services rendered the employee under Part II, Section 5, on the ground that this is an unusual case, was heard by Mr. Dickinson, representing the Board, at City Hall, Worcester, Mass., on Tuesday, Sept. 7, 1920, at 10 a. m.

Appearances: J. Joseph McCarthy, Esq., counsel for employee; Herbert H. Wise, Esq., counsel for insurer.

Question: Whether the services of Miss Gertrude E. Doyle as masseuse were medical services in an unusual case for the employee, and if so, to what extent, and what is a reasonable charge.

Agreed statement of facts made by the claimant, Miss Gertrude R. Doyle, and counsel for the parties at the hearing.

Employee was injured on March 29, 1918, while working for the Worcester Electric Light Company. He fell a distance of 20 feet, striking his shoulder, which resulted in complete atrophy of his right hand and arm. He was paid compensation for 7 months following the injury and was later paid \$500 for loss of the use of his hand. He was never paid anything for partial disability. He was treated every day from September, 1918, to the present time, practically one year. He has been treated six days a week from the Monday following Labor Day, 1919, to the present time, with the exception of Christmas Day, two days in February, and the Saturdays of August and September. Employee had a hospital bill of \$17.50 in February, 1920. He was employed at the time of his injury as a machinist, and his wages were \$19 a week. He went to work following the injury in October, 1918, as a watchman. He is an elevator freighter. The bill for massaging amounted to \$909, which consisted of 303 treatments at \$3 a treatment.

Decision of the Board. The Industrial Accident Board find and rule, upon all the evidence, that this is an unusual case under Part II, Sec. 5, of the Act, the injury of March 29, 1918, having resulted in

complete atrophy of the employee's right hand and arm, and necessitating medical treatment by the petitioner, Gertrude R. Doyle, as masseuse.

It is found that \$606, allowing \$2 per treatment, is a reasonable bill for the services rendered by the petitioner, and this bill is approved for payment by the insurer.

WM. W. KENNARD.

DAVID T. DICKINSON.

JOSEPH A. PARKS.

CHESTER E. GLEASON.

GOLDEN'S CASE.

JENNEY, J.—The employee, on March 29, 1918, while working for the Worcester Electric Light Company, received an injury to his shoulder resulting in the complete atrophy of his right hand and arm. On January 15, 1920, the insurer paid to him under the provisions of the Workmen's Compensation Act \$500 as specific compensation for "the loss of the use of his hand," apparently on the ground that it had been so injured as to be permanently incapable of use. He was also paid compensation for seven months following the injury, but received nothing for partial disability.

From early in September, 1919, to the date of the hearing upon the petition hereinafter described, he has been treated upon three hundred and three different days by Gertrude R. Doyle as masseuse. Her bill for services amounts to \$909.

The present proceeding was begun by the petition of the masseuse for the approval of her charges under St. 1911, c. 571, Part III, s. 13, as amended by St. 1914, c. 708, s. 12, and St. 1917, c. 297, s. 12, now contained in G. L., c. 152, s. 13. This section of the statute provides that the fees of attorneys and physicians and charges of hospitals for services under the act shall be subject to the approval of the Industrial Accident Board.

A petition by the masseuse for the approval of her bill was filed with the Board and heard by a single member, upon whose report of the facts the Board found that the nature of the injury constituted "an unusual case" (St. 1911, c. 571, Part II, s. 5, as amended by St. 1914, c. 708, s. 1, and St. 1917, c. 198, now G. L., c. 152, s. 30), inasmuch as it resulted in complete atrophy of the right hand and arm of the employee, that the amount was a reasonable charge for the services, and ordered its payment by the insurer.

The procedure in this case was correct. The statute did not provide for the decision of a single member which was subject to review. The procedure differs materially from that specified when the insurer and the injured employee fail to reach an agreement as to the compensation of the latter. In such cases, the claim is assigned for hearing by a single member of the Board, whose "decision . . . together with a statement of the evidence, his findings of fact, rulings of law, and any other matters pertinent to questions arising before him . . . (is) filed with the Industrial Accident Board. Unless a claim for review is filed by either party within seven days," the decision of the single member is enforceable under the statute. St. 1911, c. 751, Part III, s. 7, as amended by St. 1912, c. 571, s. 12, and St. 1917, c. 297, s. 4, G. L., c. 52, s. 8. In the proceedings now considered no decision of a single member was made. All that such member was authorized to do was after hearing to "report the facts . . . for decision." See *Huxen's Case*, 226 Mass. 292. Inasmuch as the single member made no "decision," the statutory provision for a review by the Board was wholly inapplicable.

We do not find it necessary to decide whether the employee's injury properly could have been found to constitute "an unusual case," or whether payment for medical services for a period commencing nearly

a year and a half after the accident could rightly have been ordered.

The statute provides for the payment of only physicians and hospital. Under the procedure now considered, that which is to be furnished (St. 1911, c. 751, Part II, s. 5, as amended by St. 1914, c. 708, s. 1, and St. 1917, c. 198, now G. L., c. 152, s. 30) is "adequate and reasonable medical and hospital services, and medicines, where they are needed." Detailed provisions as to the selection of a physician are set forth. While the term, medical services, being used without limitation, may be susceptible of a broad construction, the statutes cited clearly indicate that those words, as therein used, are restricted to medical assistance rendered by the physician or under his direction and control. See *People v. Pier-son*, 176 N. Y. 201.

It is not necessary to decide whether massage may be employed in connection with or as a part of treatment by a physician and under such circumstances properly classed as medical services. The massage performed, so far as it appears solely upon the employee's request and not as a part of treatment by a physician, was not medical services within the statute, and the insurer is not liable therefor in this proceeding.

The decree of the Superior Court ordering the insurer to pay to the petitioner the amount of her charges must be reversed, and a decree entered dismissing the petition. *So Ordered.*

LEGISLATIVE HEARINGS.

VACCINATION matters pro and con have been given one hearing. The anti-vaccinationists have been very much more dignified and reasonable in their contention than in previous years. The attack centered on the proposition that there should not be an invasion of personal rights but rather that vaccination should be an elective and not a compulsory measure. In addition to testimony of representatives of the Medical Liberty League and anti-vaccinationists, several members of the House and Senate spoke against compulsory measures, although it is known that some objectors employ vaccination in their own families. These people seem to be indifferent to the fact that society at large may logically demand of the citizens surrender of individual independence in favor of community benefit. Under this fundamental conception of community life the State may even demand any sacrifice of individual opinion for the safety of the composite. These objectors want a certain exemption from the burden of common responsibility.

The vaccination side was ably handled by the President of the Society, the Commissioner of Public Health, Mr. Dublin of the Metropolitan Life Insurance Co., and others.

Mr. Dublin introduced a new quality of evidence in the results of studies maintained by the Metropolitan Life Insurance Co., for this organization is interested in a dispassionate consideration of the whole question from a business standpoint. He showed that this Company,

through its aids to preventive medicine, had been instrumental in reducing the mortality rate to an appreciable degree, probably amounting to not less than one hundred thousand lives. He went on to show that smallpox was a constant menace, greater in the states where vaccination laws were inadequate or not well enforced as shown in the country west of the Mississippi and if the bars are let down in Massachusetts the same conditions would soon exist which are found in California, Oregon and other western states. A decision on the question of vaccination could not be left to the general public, and the Legislature must decide whether we shall have smallpox or not. The Company is not interested in any fad, but is concerned in the truth relating to mortality and morbidity.

In the afternoon the State Department of Public Health exhibited a film under the title "One Sear or Many," showing the salient features of smallpox and the protective measures used to control it.

The bill for the extension of vaccination to private schools was taken care of by Dr. Bartol and several other speakers.

Everybody must realize that the hearing is the preliminary skirmish. The real fight will come in the House and Senate. Members of the Legislature, as a class, mean to vote for the best interests of the state, but they cannot be expected to comprehend a public health measure unless the subject is explained.

The bill to regulate the hours of nurses in hospitals has been heard and it was found that the proponent intended to have the provisions apply to state institutions, so that unless someone is interested to push it as printed there will be, it is expected, little prospect of its serious consideration.

House 751, designed to permit inmates of insane hospitals to send out uncensored letters, brought before the committee a number of persons who seemed to be mentally unbalanced. There appear to be some people in every community who are by nature suspicious and are influenced by the complaints of friends who are insane, and really believe that our insane wards are abused. A kindly interest in these unfortunates would lead to the exercise of care over correspondence, both for the purpose of protecting the recipient as well as to safeguard the sender from an exhibition of a deranged mind. The arguments against the bill are almost unnecessary, but the contention that the proponents of the bill ought to be subjected to an investigation of their mental stability may be well founded.

The bill for the registration of midwives was considered February 8. The arguments presented in favor of this measure were presented by those who felt that since the midwife is

actually doing work, she should be licensed and regulated and that by this method the incompetent would be eliminated and the people better served.

The Hampden County Medical Society, through its secretary, endorsed the bill, as did several physicians from Springfield and other parts of the state.

The opponents of the bill felt that the question of obstetrics is a purely medical one and that it would be unwise to legalize the practice of those who have a very limited medical education, and the general endorsement of the custom of employing midwives might postpone the more general adoption of efficient prenatal work.

House bill 532, designed to remove the restriction relating to the appointment of members of the Board of Registration in Medicine, was actively opposed by a representative of the osteopathic school who feared that if the law left the governor free to appoint a larger representation of any one medical society his school might be "frozen out."

A Mr. Cox, counsel for a man who has been suspected of unethical practice, also opposed the bill. He is the petitioner for a bill which, if enacted, would make a lawyer the Secretary of the Board of Registration in Medicine.

The arguments in favor of the bill are founded on the common understanding that there should be little differences in schools of medicine, but that all physicians should have an understanding of the fundamental sciences on which medicine is built, and that the selection of a Board of Medical Examiners may at this time be made without reference to sectarian differences.

The bill to provide for the registration of medical students is designed to protect those students that are assigned to the study of cases, for threats have been made to prosecute such students under a complaint that such work may be contrary to the law. This bill was advocated by the petitioner and the Dean of Boston University Medical School.

Both Harvard and Tufts Medical Schools omitted sending representatives to speak in favor of this bill. One can hardly understand the reason for this evidence of lack of interest in a measure designed to protect medical students.

The effort to maintain or extend the Daylight Saving law was indorsed by Dr. William R. P. Emerson, R. V. Spencer, representing the Massachusetts Tuberculosis League, and others. Dr. Emerson said: "Nothing which medical science has discovered, can compare with sunlight and pure air in treatment of a disease, such as tuberculosis, or in curing skin diseases or healing wounds.

Railroad officials and the farmers seem to be the most effective objectors to Daylight Saving.

It is significant that the New England Shoe and Leather Association are on record in favor of Daylight Saving, probably not as a health measure but because longer hours of daylight will result in wearing out more shoes. Proponents of health measures might use this as an argument, because the wearing out of footwear promotes wholesome exercise.

LEGISLATIVE MATTERS.

NARCOTIC DRUG CONTROL.

THE hearing February 13 covered the questions relating to better control of the narcotic drug problem.

Testimony submitted tended to show that many addicts succeed in evading the law, through the use of Seth Arnold's Balsam and Paregoric, which are being sold quite freely by druggists. The use of morphine and cocaine is provided for by peddlers, the supply coming in both by smugglers from Canada and European countries. It was shown that the profits are enormous, for an ounce of morphine costs the distributors from about ten to forty-five dollars, in some instances, and an ounce retailed may bring in more than two hundred dollars. Mr. Chase, of the Watch and Ward Society, testified that in three days agents of this Society secured twenty-six samples of opium preparations, sold by thirteen druggists, but in order to secure the sale, misleading statements had to be made, which raised the question as to the liability of the purchaser; hence prosecutions could not be made. The contention was made that the habit-forming drugs are being sold so freely by druggists that more harm is being done in this way than by the bootleggers. A representative of the Federal Government supported many statements made by Mr. Chase, and argued that since there are not adequate Federal means for controlling the traffic, the State laws could be improved so that less harm would be done. Several members of the Committee were very much interested in the subject and asked many questions, so that there was a complete explanation of the dangers incident to drug addiction. Other members of the legislature should be informed of the reasons for better control of the distribution of narcotic drugs, because the dangers incident to the use of these habit-forming poisons extend beyond the individual and involve criminal behavior and a definite burden on society.

THE CHICAGO CONGRESS.

THE great importance of the Congress on Medical Education, Medical Licensure, Public Health, and Hospitals, which has been held in Chicago each winter for several years, is not,

in all probability, fully realized by the majority of physicians, but the subjects discussed and recommendations presented promote, to a large degree, understanding of the difficulties which are to be met by medical educators and health officials.

The next sessions will be held March 6th to 10th, inclusive, in the Florentine Room of the Congress Hotel. The meetings devoted to medical education will be presided over by Arthur Dean Bevan, Chairman of the Council on Medical Education and Hospitals of the A. M. A., and those devoted to health and public instruction, by Dr. Victor C. Vaughan. The Association of Medical Colleges will also hold meetings, and there will be conferences on hospital service.

These meetings are intensely interesting to all persons concerned in medical education and administration of other matters vital to medical progress.

The addresses are by men who are authorities on the subjects under discussion, and the debates bring out all matters about which there are differences of opinion. Every physician who can afford to make the break, would find much profit and entertainment through attendance upon these meetings. Those who are inclined to question the motives and methods of the A. M. A. officers certainly ought to attend, because one would meet those who are influential in forming the policies of the Association, and these men are always ready to discuss matters of interest.

MENTAL HYGIENE.

THE public interest in mental hygiene, along the lines suggested in a recent *JOURNAL* editorial, has materialized, as shown by the attendance, and contributions pledged at the meeting held in Symphony Hall February 8th.

This campaign has been inaugurated by the National Society for Mental Hygiene. Governor Cox presided and addresses were delivered by Dr. Thomas W. Salmon of Columbia University, Dr. William A. White, of Washington, D. C., Dr. C. Macfie Campbell, of Boston, and Dr. Haven Emerson, formerly Health Commissioner of New York. Governor Cox emphasized the facts which have been published in the *JOURNAL* in allusions to the large appropriations made by this Commonwealth for the care of sufferers from mental diseases, and referred to the belief that if one half of these cases could have been properly cared for in the curable stage these unfortunates would have been comparatively well.

Boston's quota to this campaign fund is \$35,000 a year for five years.

This is one of the most important departments of preventive medicine, but in order to secure the best results the support of the gen-

eral public must be given. The problems can, to a great extent, be understood by the laity. The laity should contribute liberally to the fund.

NEWS NOTES.

HARVARD MEDICAL SOCIETY.—A meeting was held in the Peter Bent Brigham Hospital Amphitheatre, Tuesday evening, February 14. Program: "Ovarian Hematomas of Endometrial Type (perforating hemorrhagic cysts of the ovary) and Implantation Adenomas of Endometrial Type." Speaker, Dr. John A. Sampson, Albany, N. Y.

DR. ROBERT N. NYE, formerly research assistant to Dr. F. B. Mallory, has accepted the position of assistant director of the Division of Biologic Laboratories of the Massachusetts State Department of Public Health.

DOCTOR FOR 50 YEARS.—Dr. Augustus L. Chase, of North Main Street, Randolph, Mass., the oldest practising physician in point of service in this district, recently observed the 50th anniversary of his admission to the practice of medicine.

CANCER NOTES.—The Northwestern Mutual Life Insurance Company has prepared a leaflet entitled "Facts about Cancer," in which the essential facts which the laity should know are set forth under fourteen paragraphs. This leaflet is endorsed by the American Society for the Control of Cancer, and should be in the hands of physicians for distribution. Cancer work should not stop with the campaign of last autumn. This great, imperfectly known (etiologically) cause of death should be placed before the people constantly.

DURING the week ending February 11, 1922, the number of deaths reported was 219 against 201 last year, with a rate of 14.95. There were 29 deaths under one year of age against 23 last year.

The number of cases of principal reportable diseases were: Diphtheria, 65; scarlet fever, 47; measles, 124; whooping-cough, 12; tuberculosis, 43.

Included in the above, were the following cases of non-residents: Diphtheria, 3; scarlet fever, 18; tuberculosis, 5.

Total deaths from these diseases were: Diphtheria, 2; scarlet fever, 1; whooping-cough, 1; tuberculosis, 13.

Included in the above, were the following cases of non-residents: Diphtheria, 1; scarlet fever, 1; tuberculosis, 3.

Trichinosis, 4 cases; 2 deaths.

THE Cutter Lectures on Preventive Medicine were given at the Harvard Medical School by Alfred F. Hess, Clinical Professor of Pediatrics, University and Bellevue Hospital Medical College, New York City. Subjects: "Nutritional Disorders in the Light of Recent Investigations," on Tuesday, February 14, 1922; "Newer Aspects of the Rickets Problem," on Wednesday, February 15, 1922.

These lectures are given annually under the terms of a bequest from John Clarence Cutter, whose will provided that the lectures so given should be styled the Cutter Lectures on Preventive Medicine and that they should be delivered in Boston and be free to the medical profession and the press.

THE SPRINGFIELD ACADEMY OF MEDICINE.—A public meeting will be held March 7th in the Central High School Hall, in Springfield, Mass. The address will be given by Dr. LaPlace. His subject, "Louis Pasteur," holds as much interest for laymen as for the profession, and for that reason every effort should be made to bring this meeting to the attention of the public.

The February meeting of the Springfield Academy of Medicine was held Tuesday, February 14, 1922. Dr. Lawrason Brown of Saranac Lake read the paper of the evening, entitled "The Value of X-rays in Pulmonary Tuberculosis."

Following are the officers and committees for 1921-1922: President, Ralph B. Ober, 76 Maple Street; First Vice-President, Orland R. Blair; Second Vice-President, John M. Tracy; Secretary, Allen G. Rice, 33 School Street; Treasurer, Eoline C. Dubois, 2 Temple Street.

Board of Directors: H. W. Van Allen, F. B. Sweet, Philip Kilroy, T. G. Alcorn, E. A. Bates, J. M. Birnie, R. S. Benner, G. D. Weston, L. D. Chapin, E. L. Davis.

Board of Censors: R. A. Kinloch, F. D. Jones, H. L. Smith, C. A. Schillander, F. K. Dutton.

House Committee: H. W. Van Allen, C. F. Lynch, H. Buddington.

Library Committee: A. C. Eastman, George Coreoran, H. C. Martin.

Registry Committee: J. M. Birnie, Seth Lewis, J. M. Tracy.

Legislative Committee: A. C. Eastman, H. W. Van Allen, H. L. Smith.

ESSEX NORTH REPORTERS.—In accord with the suggestion of the Editor of *The Boston Medical and Surgical Journal*, Essex North District Medical Society has arranged a system by which all parts of the District are covered in the matter of reporting news items to the official organ of the Massachusetts Medical Society, by the following plan.

The Secretary of the District Society was

elected as reporter and the following members have accepted positions as sub-reporters covering their respective territories.

Haverhill, F. B. Pierce, M.D., of Haverhill.
Georgetown and Buxford, E. M. Hoyt, M.D., of Georgetown.

West Newbury, W. L. Orcutt, M.D., of West Newbury.

Methuen, R. V. Baketel, M.D., of Methuen.
North Andover, F. S. Smith, M.D., of North Andover.

Merrimac, F. E. Sweetsir, M.D., of Merrimac.

Andover, W. D. Walker, M.D., of Andover.
Groveland, E. G. Bagnall, M.D., of Groveland.

Newburyport and Newbury, R. L. Toppan, M.D., of Newburyport.

Rowley, F. L. Collins, M.D., of Rowley.
Amesbury and Salisbury, O. R. Mudge, M.D., of Amesbury.

Lawrence, J. F. Burnham, M.D., of Lawrence.

The Secretary's office will act as clearing house for items of this kind.

J. FORREST BURNHAM, M.D., *Secretary*.

AMESBURY.—In the latter part of January, while making calls with his driver, Dr. P. J. Mullen was thrown from his sleigh and fractured his shoulder. He is progressing favorably.

CERTIFICATE OF REGISTRATION SUSPENDED.—At a meeting of the Board of Registration in Medicine, held February 15, 1922, the registration of George A. McEvoy was suspended for one month.

FRANKLIN DISTRICT MEDICAL SOCIETY.—Dr. J. A. Mather of Greenfield, the President, has appointed Dr. B. P. Croft and Dr. C. F. Canedy of Greenfield, and Dr. W. A. Smith of Shelburne Falls, as a committee to investigate the matter of certain charges made as to nurses "practising medicine." The question was brought up by Dr. Croft at the last meeting of the Society, held in January, on the following question: "Are the so-called District, Industrial, Red Cross, or Social Service nurses encroaching on the legitimate work of the regular physicians, and if so, can such practices be corrected by a conference with as many of these nurses in our community as are accessible, whereby the legitimate work of both nurse and physician can be thoroughly discussed and a plan to prevent encroachments outlined, to the mutual advantage of both parties, and with no detriment to the health of the public?" It was moved that "a committee of three be appointed to hold a conference with representatives of nurses in Franklin County to attempt an answer" to this question.

The fact that a physician in one locality had made an attempt to get action from the Grand Jury as to a nurse's practising medicine, and that there have been specific charges made in various letters to the JOURNAL from another physician in the same locality, has stirred up a good deal of feeling. This has not operated to promote the best relations between physicians and nurses elsewhere in the county. The canvass made among the physicians several months ago was a beginning in the endeavor to interest them toward better coöperative relationships with the nurses who have recently gone into such districts as agents of welfare organizations. The region is certainly not overstocked with physicians, and if these men can be gotten together and so organized as to have more of a directing influence in welfare work, and their activities be satisfactorily distributed, the best interests of the public and the profession will be assured.

PAUL W. GOLDSBURY, M.D., *Reporter*.
Deerfield, Mass., Feb. 13, 1922.

HAMPSHIRE DISTRICT AFFAIRS—Hampshire District Medical Society. Dr. William J. Collins, of Northampton, sailed on the S.S. "Empress of France," from New York, on February 11, for an extended tour of the Mediterranean which will include Egypt, the Nile Valley and the Holy Land. While in Europe he will join his brother, Dr. J. D. Collins, for the return trip, and both expect to resume practice on May 1.

The Northampton Board of Health concluded a very successful demonstration of immunizing children with toxin-antitoxin, on February 1. A clinic was opened during the Christmas vacation offering free inoculations to all parents who desired to protect their children against diphtheria, including Schick tests to any who desired. About 2000 children had the three injections required, and the demand was so urgent that the clinic was continued under the direction of the School Physician, Dr. J. G. Hanson. The clinic is entirely voluntary, but the response has been spontaneous, parents being eager to take advantage of the measure recommended by medical authorities which will prevent diphtheria. A great majority of the children of Hadley have already been immunized by Dr. F. H. Smith. The selectmen of Williamsburg have voted to open a clinic under the direction of Dr. J. G. Hayes and Dr. C. H. Wheeler. Easthampton and Amherst are considering the establishment of similar measures at an early date.

Dr. T. F. Corriden has opened an office in Central Chambers, Northampton. Dr. Corriden was formerly resident surgeon at the Carney Hospital, Boston, for two years. Dr. F. W.

Doyle has opened an office in the Sherwin Block, Northampton. Dr. Doyle formerly practised in South Deerfield for several years.

Dr. G. J. Hickey, of Florence, is enjoying his annual outing in Florida for the winter months.

Miscellany.

HARVARD MEDICAL SCHOOL.

At a meeting of the Faculty of Medicine held on Friday, February 3, it was voted to adopt the principle laid down by the Correlation Committee that not more than 900 hours of fixed exercises be given in each of the first three years. The numbers originally were: first year, 1216; second year, 1271; third year, 1252.

It was further voted that, so far as possible, the schedule of the first, second and third years be so arranged as to leave Tuesday and Thursday afternoons free. This free time will allow the students to follow up lines of work in which they are interested, and go to voluntary courses. It is thought that students becoming interested in blood studies, through medicine in the clinical years, may like to take work in the chemistry department, and thus keep themselves acquainted with various advances made since they took the first year chemistry course; and that many similar instances may occur. Students who work more slowly than the average and who feel the pressure to their great disadvantage under the present arrangement, can use these free afternoons for additional work in the regular courses.

Finally, it was voted that the arrangement of hours for the first two years, proposed by the Correlation Committee, be approved. The details of the third and fourth year programs have not been finally arranged. It is possible that the number of hours in the fourth year will be left unchanged, since in the clinical courses lasting a whole, or even a half month, there is considerable freedom allowed as to the details of work.

Further announcement will be made when the third and fourth years are arranged,—which will not be before the second week in March. The Faculty has asked the Corporation to authorize an R. O. T. C. Unit at the School. The Corporation has appointed Colonel George E. Bushnell as Professor of Military Science and Tactics at the Medical School; he is now awaiting orders from the Surgeon-General's Office detailing him to this Unit.

DIPHTHERIA IN CHICAGO.

ALTHOUGH the Chicago Commissioner of Health has made a determined effort to control diphtheria, he has expressed disappointment at the failure to secure the beneficial results which were to be expected.

The lack of progress is apparently due to inefficient coöperation on the part of the profession, and understanding by the laity. A diphtheria commission has been created composed of fifty leading people from the medical profession, newspaper world, educational circles and social workers. This commission appointed a medical committee to study and make suggestions. A report of this committee has been made and the important recommendation is for better coöperation of the medical profession in the use of toxin-antitoxin.

The commissioner has determined to put the responsibility where it belongs. This, according to statements made in the Bulletin, means that whenever a child dies of diphtheria there has been negligence on the part of the parents or the physician or both. Investigations made by the Department of Health seem to warrant these conclusions. The Department has adopted the custom of calling physicians before it for the purpose of fixing the blame. This action shows that the Department is alive and active.

It is hoped that there will be no occasion for such activity in Massachusetts, but the mortality from diphtheria warrants suspicion.

BOSTON MEDICAL LIBRARY IN CONJUNCTION WITH THE SUFFOLK DISTRICT MEDICAL SOCIETY. MEDICAL SECTION MEETING, DECEMBER 23, 1921.

VALUE OF THE DUODENAL TUBE IN DIAGNOSIS AND TREATMENT.

BY DR. CHESTER M. JONES.

DISCUSSION.

DR. FRANKLIN W. WHITE: Dr. Jones has presented this subject in a very rational, sensible and conservative way. It is a subject about which there may be great difference of opinion. In regard to some of the technical details of getting in the tube, I think the method of intubing, if a fluoroscope is available, is quite simple and quick, and it may be done in office work in a short time. If the fluoroscope is not available, it is rather tedious. We have intubed 300 or 400 cases in the last year, and it took from 20 to 30 minutes in 80 per cent. of the cases. In the other 20 per cent., we took a good deal longer. I am speaking of the ambulatory cases. Patients in bed for

jaundice or extensive adhesions will require a much longer time. As a rule, we haven't found that ptosis made very much difference. I have been surprised to find that what has bothered us most in getting the tube in has been extensive adhesions, and in jaundice, the nausea and vomiting, and lack of peristalsis. This angulation which Dr. Jones showed in one of his charts has some value in showing an abnormal duodenum, but it is really a much more striking deformity in the ordinary x-ray plate. We must remember that some of these peculiar curves may be merely personal variations and not disease conditions at all. With regard to the study of the pancreatic juices, I feel sure the tube will be used in the future more than in the past. Regarding the emptying of the gall-bladder, about which Dr. Lyons felt so sure a year ago, my feeling is that this emptying has been quite variable. As to segregating the bile from different parts of the biliary tract, I feel exactly as Dr. Jones has said. We have only found a few clusters of cells which have been sufficient to be diagnostic. Two cases showed so abundant that we were justified in a diagnosis of stones. As a rule, the stone cases have been difficult to help with this method. The gall-bladder is blocked off with obstruction of the cystic duct, so that in a stone case, when we draw off bile, it is practically normal. This method of using the duodenal tube is an elaborate one and needs an x-ray control for very accurate work. In order to be sure that we have material we can count on, we must be sure where the end of the tube is. After going through a large series of cases, it is my opinion that we get something of value in the majority of cases. Pathological cases show pathological bile. The exceptions were the stone cases which were very disappointing, as a group. I have had a chance to observe the effects of treatment in 30 or 40 cases. They were all mild acute infections or mild chronic infections in which we had every reason to believe there were no extensive pathological changes. Our idea was to clean out the biliary passages as well as we could. It seemed to me, without any question, that those patients did better than I have been accustomed to see chronic gall-bladder cases do. This treatment must be used in a limited field. The only ones fair to try at all are the mild, either acute or chronic, cases. There is no doubt that the early papers were too enthusiastic, and a great deal was said about this method that will have to be taken back. I think at the bottom there is something of value.

DR. F. W. PALFREY: As far as my experience goes, I believe that Dr. Jones has made an extremely judicious statement of the state of affairs in connection with the work done hereto. This use of the tube is a method by which we are able to obtain the excretion from

the liver,—the bile,—and it is to be compared with what we have done for years in diseases of the urinary tract. The diagnostic value is uncertain. I hope it may be as great as the diagnostic value of the urine, but it does not seem to promise as much. It is only by such work as that of Dr. Jones that we can see how far the method is of value. I have been much interested in his work on the bile pigments, and on that I have no way of forming an opinion, but I hope it will be of greater value than other methods of examination of the bile. Regarding treatment, I can certainly endorse what he has said as to the value of the tube in certain cases of vomiting. It seems to tide over some patients extremely well. I have often thought a pediatrician might use an infantile tube for the violent vomitings of infancy. As to treatment by the Lyons method, I have wondered whether it might not be possible, in some cases, to accomplish the same results by giving magnesium sulphate by mouth. I would like to ask Dr. Jones if he has ever done this after the tube was in place. I have, and have had, practically the same change as when it was given through the tube. My cases seem to be representative, and I think by this method we may find what the treatment by magnesium sulphate will do.

DR. C. W. McCLURE: What one is seeking with the duodenal tube is evidence of perversion of function. We know very little about the function of the liver. Taking for granted that bile comes from the liver, secreted or excreted, or both, we have a process which we can say is physiological. In studying the normal, there is no glory. As a matter of fact, no one seems much interested in physiology; but Dr. Jones has made a study of the normal, and I want to compliment him for having done that very thoroughly before he started to study the pathological. To all of us who have used the Lyons method, it does seem to have some value from the diagnostic standpoint, and the colors of the bile seem to be of significance. Dr. Jones' study of the bile pigment gives a rational basis for that belief. When anything is put in the duodenum the bile flows. If water is put in the stomach one color is obtained; if fat or casein is put in, another color obtains, so that various materials do give various colors to the bile. The viscosity of the bile, however, with the same substance varies in the same person from time to time, and in different persons, and in determining the viscosity of the bile, there is a pathological element. Viscosity is a very relative term. In secreting bile, we are working with a physical element, and the relation in which we view colors has a great deal to do with our ability to detect changes in colors. If one allows, in good daylight, the bile to drop from the end of the tube, very frequently changes in the

color of the bile occur within two or three drops; again, the transition is very much less sharp. The spectroscopic examination puts aside very largely the personal element. Of course, a good spectroscope in the pre-war days cost \$600 and is very difficult to use. The hand spectroscope is very delicate, but I think we can devise a method which will take much less technical knowledge. Dr. Jones is studying, at present, certain of the endocrines in the duodenum.

DR. F. B. LUND: I think that the surgeons ought to welcome such interesting and important studies as this, as it certainly helps them and their patients, to have their patients thoroughly studied before operation. The viscosity of the bile is particularly interesting to the surgeon, since it may be so great as to cause all the symptoms of gallstones, and again, in the actual operation, may harass him a good deal by not flowing through his trocar, so he has to cut the gall-bladder and risk the staining, unless he has a very large trocar and a great deal of patience. It stands to reason that having a stone in the cystic duct, we cannot cause bile to come from the gall-bladder into the duodenum by any method used. The gall-bladder, though elastic, has so few muscle fibers in its wall as compared, for instance, with the small intestine, that it would seem to me much more natural not to consider that whatever motion it has was due, not to muscular contraction, but to elasticity. As we compare the thin, fibrous wall of the gall-bladder with the thick, muscular wall of the small intestine, this point of view seems reasonable. Some years ago, in operating on the gall-bladder, we had cultures taken in a good many cases, and the commonest organism we found was the colon bacillus. Sometimes we found pus organisms, and as is well known, in rare cases, the influenza bacillus is the cause of the infection. On the other hand, in actual cholecystitis, we often found sterile bile, and we have found, since then, that the infectious organisms are in the wall of the gall-bladder, and not in the bile; also in bile which has become sterile we may have the organisms locked up in the middle of the gallstones, where they have formed centers of crystallization. The infectious process had started, the stones had formed, and then the infectious process had drained off and left the stones there. Where the cystic duct is stopped up by a stone, no bile can get by this stone into the gall-bladder. Whatever bile has been there is deposited, and then the gall-bladder is filled with clear fluid containing mucus. The same thing happens after long obstruction to the common duct in the branches of the common and hepatic duct. The liver has gone on strike on account of the back pressure, and what bile has been secreted is absorbed. In opening such a common duct, if you find only a little bile, your prognosis

is much better than if the fluid is absolutely clear, and if the bile does not begin to be secreted within a few hours your patient is very sure to die.

The coöperation of the surgeon and physician in such work as this, is going to be of great value, and I want to congratulate the Society on having such an interesting paper.

DR. DANIEL F. JONES: This method was begun with great enthusiasm and everybody thought we were going to be able to diagnose all sorts of conditions in the duodenum and liver, and after this rather false start, I hope it isn't going to be given up entirely. I am sure there is something in it. I have seen some of Dr. Jones' work at the Hospital, and it is of great value. I think one great fault with us American physicians and surgeons is that we start out with these new ideas too enthusiastically and then because they don't give us all that was promised, we give them up. I find that there are very few of these laboratory tests that ought to be given up entirely and I hope this will not be one. Dr. Jones has given us a very excellent paper on this subject. It seems to be more difficult to give much help where stones are not present, where there is nothing but cholecystitis. When stones are present, the diagnosis is comparatively easy, but it is the cases where there are no stones that the diagnosis is difficult.

DR. JONES (in closing): It is quite possible to make a confirmatory diagnosis by giving magnesium sulphate by mouth. Lyons says that it doesn't make any difference whether it goes over the stomach contents or not, but it gives better results by not going this way. As to the viscosity of the bile, it varies a great deal in different conditions. The viscosity varies greatly with the amount of gastric contents. Viscous duodenal contents does not necessarily mean viscous bile. In quite a series of cases I have noticed changes in color which were not visible to the eye, whereas by spectroscopic examination it was perfectly possible, four, five, or even ten, changes above the normal, so that mere gross color changes are not exact. It is true that even with the gall-bladder out you do get B. bile. In explanation of that I offer this, that the gall-bladder wouldn't have been taken out if there had not been cholecystitis. In practically every case, there is an infectious process in the liver. The function is therefore altered and you are going to get dark bile, anyway.

RECENT DEATH.

SEWELL ELLIOTT GREENWOOD, M.D., died at his home in Templeton, February 5, 1922. He was a graduate of Harvard Medical School in the class of 1877, joined the Massachusetts Medical Society in 1881, and settled in Templeton. His name was placed on the retired list in 1919. Dr. Greenwood was 68 years of age.

Correspondence.

THE REACTION OF IMMUNITY.

Mr. Editor:

Mention is often made of repeated failures of vaccination, which require a repetition of the operation, often without a successful result, and I venture to suggest that many of these supposed failures are due to the so-called reaction of immunity and not to impotent vaccine.

The reaction of immunity is described in United States Public Health Reports, Vol. 36, Number 33, and I believe is not generally recognized by the profession.

The reaction shows itself within twenty-four hours after vaccination with a potent vaccine, by the appearance of an areola around the site of the inoculation. The next day a small red, itching, papule appears and the areola has increased. The papule does not become vesicular and disappears on the fourth or fifth day. For this reason, if for no other, the vaccination should be seen on the day following the operation because, if the reaction of immunity occurs, all action has ceased before an ordinary case has begun to "take" and, as a rule, the vaccination is considered to be a failure.

The reaction of immunity occurs more frequently with secondary than with primary vaccinations and may be used as a test of the immunity of a person who has been exposed to smallpox, for if a marked reaction takes place, there is no need to worry over the supposed failure of the protective vaccination.

FRANCIS GEO. CURTIS, M.D.,
Chairman, Newton Board of Health.

RURAL MEDICAL SERVICE.

Dr. John M. Dodson, Dean of the Medical School of the University of Chicago, says regarding the future field of medical practice:

"I am sure that in the great scientific progress of the last two or three decades, we have lost, in the medical profession, a good deal of that splendid spirit of service which is the chief glory of the medical man of the earlier days." "I question seriously whether the family doctor will not, in the future, find his greatest usefulness in the field of preventive medicine, as the health adviser of his clientele, receiving his major compensation in the form of annual fees for keeping his patients well."

Dr. F. E. Sampson, of Creston, Iowa, who has made a unique success in the development of a Greater Community Hospital Association, to serve both town and country says:

"The growing disparity between central and peripheral functioning efficiency of the medical profession, has so far advanced that the congestion on the one hand and the depletion on the other discounts the value of both central and peripheral tissues of the profession. I insist it is time to stress development of peripheral organization and turn to making the fields of need for medical service the field of opportunity for men whose training for medical practice includes the inculcation of *inspiration to service* as well as *information as a means of service*."

The drift of physicians from rural sections to large towns and cities can be stayed if rural hospitals and facilities are better organized to meet up with needs of physicians of their special localities. The rural field can be made to attract capable men now crowding metropolitan centres.

PAUL W. GOLDSBURY.

TO WHOM IT MAY CONCERN.

Mr. Editor:

Will you please publish a copy of a certificate from a Registered Nurse as it may interest some of the readers of your Journal and give them some idea of how many of the nurses in Fall River practice medicine. I do not know if this applies all over the state or is just confined to Fall River. Probably some readers may testify about conditions in their vicinity.

(Copy.)

February 6, 1922.

To Whom It May Concern:

This is to certify that Mike Farzak, employed by the Massasoit Mfg. Co., was injured January 26, 1922, and is unable to work. Middle finger of left hand was caught in Card and badly lacerated at the top. In good condition at the present time.

CATHERINE L. SULLIVAN, R.N.

Mr. Farzak was injured January 26, and was treated by the nurse from January 26 to February 5th, inclusive. He was never attended to by any physician. He is a member of a Benefit Society and in order to receive any benefit, he was notified to bring a Doctor's Certificate. The nurse gave him the certificate as printed above, but the Society would not pay him any benefit on a nurse certificate. Therefore he came to me for a certificate.

The condition of the finger at present: There are several linear wounds of the back of the finger and of the finger nail. The tip of the finger is all right, but the palmar surface of the finger is denuded of skin about $\frac{3}{4}$ inch long and $\frac{1}{2}$ inch wide, extending from about $\frac{1}{8}$ inch from the tip of the finger to within a quarter of an inch from the first joint.

Does this certificate concern the people?

Does this certificate concern the Massachusetts State Board of Registration in Medicine?

Does it concern the readers of the BOSTON MEDICAL AND SURGICAL JOURNAL?

Does it concern the Massachusetts Medical Society?

Does it concern the Fall River Medical Society?

Does it concern the Liability Insurance companies?

Does it concern the Industrial Accident Board?

Enclosed find a sworn copy of the certificate.

Very truly yours,

JOHN F. LOWNY, M.D.,
Fall River.

COMMITTEE ON PUBLIC HEALTH.

Mr. Editor:

The following endorsements to the Resolution passed at a meeting called by the Committee on Public Health of the Suffolk District Medical Society on January 11, 1922, have been received to date:

American Red Cross, Boston Metropolitan Chapter.

Baby Hygiene Association.

Boston Council of Social Agencies.

Boston Dispensary.

Boston Lying-in Hospital.

Boston Tuberculosis Association.

Boston University School of Medicine.

The Children's Hospital.

The Household Nursing Association, Inc., and Training School for Attendants.

Instructive District Nursing Association.

Massachusetts Charitable Eye and Ear Infirmary.

Massachusetts General Hospital.

Massachusetts Homeopathic Hospital.

Massachusetts Homeopathic Society, Boston District.

Massachusetts Society for Social Hygiene.

Maverick Dispensary.

New England Association for Hospital Social Workers.

Norfolk District Medical Society.

Nutrition Clinics for Delicate Children.

Peter Bent Brigham Hospital.

Suffolk District Medical Society.

Tufts College Medical School.

Very truly yours,

GEORGE CHEEVER SHATTUCK, M.D.,

Chairman of the Co-ordinating Committee.

NOTICES.

PUBLIC HEALTH LECTURERS.

LECTURERS FOR THE YEAR 1922.

The Committee on Public Health of the Massachusetts Medical Society has been able during the past three years to arrange with well known specialists in various medical fields to give talks at meetings of the District Medical Societies on subjects of interest and importance to all practitioners. It is a pleasure to announce that a similar arrangement has been made this year and that the gentlemen named below are willing, without expense to the District Society, to give occasional talks of thirty to forty minutes on subjects relating to the promotion of public health, extending opportunity for questions and discussion. It is suggested that medical societies consider meeting at neighboring public institutions, since such meetings have been most successful in the past, particularly at the tuberculosis sanatoria and state hospitals for the insane.

José Penteado Bill, M.D., Doctor of Public Health, Specialty: Preventive Medicine.

Frank C. Dunbar, M.D., Bacteriologist, Instructor in Bacteriology and Pathology, Tufts College Medical School.

Walter E. Fernald, M.D., Superintendent, Massachusetts School for the Feeble-minded.

Timothy Leary, M.D., Professor of Pathology, Tufts College Medical School; Medical Examiner, Suffolk County.

Edwin H. Place, M.D., Physician-in-Chief, South Department, Boston City Hospital. Specialty: Contagious Diseases.

C. Morton Smith, M.D., Chief of Department of Syphilis, Massachusetts General Hospital.

George Gilbert Smith, M.D., Assistant in Department of Genito-Urinary Diseases, Massachusetts General Hospital. Specialty: Genito-Urinary Diseases.

Lesley H. Spooner, M.D., on Staff of Out-Patient Department, Massachusetts General Hospital. Specialty: Specific Diagnosis and Treatment of Pneumonia.

William C. Woodward, M.D., Health Commissioner, City of Boston.

George H. Wright, D.M.D., Lecturer on Dental Hygiene, Harvard Dental School. Specialty: Dental Surgery.

Thomas F. Kenney, M.D., Director of School Hygiene, City of Worcester. Specialty: Full time School Health Officer.

Secretaries of District Medical Societies writing to ask for these lecturers will kindly designate the topic, the place and the hour of meeting as well as the name of the desired speaker, thus eliminating unnecessary correspondence. Please address communications to the Secretary of the Committee, Annie Lee Hamilton, M.D., 164 Longwood Ave., Boston 17.

A COURSE IN MEDICINE AND PATHOLOGY AT MASSACHUSETTS GENERAL HOSPITAL.

A COURSE in "Medicine and Pathology" will be given in the Amphitheatre of the Pathological Laboratory by Dr. William H. Smith, Visiting Physician of the Massachusetts General Hospital, and Dr. Oscar Richardson, Assistant Pathologist of the Massachusetts General Hospital.

The complete clinical records of cases coming to autopsy will be presented by Dr. Smith, who will discuss the differential diagnosis. The pathological findings will then be stated, the organs demonstrated and the pathology of the cases discussed by Dr. Richardson. This will be followed by a general discussion of the cases, viewed in the light of the completed records, and attention will be called to the newer diagnostic methods and to the broad principles of treatment involved. Microscopical preparations and lantern slides will be used when necessary.

There will be nine exercises, on Wednesdays, in the months of March and April, between 3.15 and 5.15 P.M.

The course is open to graduates in medicine and medical students of the third and fourth years, subject to their acceptance by the hospital.

Women admitted.

Given in connection with the Harvard Graduate School of Medicine.

A fee of \$5.00 will be charged for the course. Application should be made to

FREDERIC A. WASHBURN, M.D., *Director*,
Massachusetts General Hospital, Boston, Mass.

BOSTON SANATORIUM, FORMERLY BOSTON CONSUMPTIVES' HOSPITAL. Name changed by City Ordinance, January 18, 1922. Trustees' office, 1001 City Hall Annex. Hospital, 249 River Street, Mattapan. Men, women and children, residents of Boston, in all stages of pulmonary tuberculosis, are admitted. Patients with non-pulmonary tuberculosis are admitted when there is room for them. Apply to the Superintendent of the Hospital, Dr. A. J. White, or to the Superintendent of Nurses of the Out-Patient Department, Miss Gardner, for admission. Out-Patient Department, 13 Dillaway St., Boston. Open on Mondays, Wednesdays, Fridays and Saturdays from 9 to 11 a.m., and on Monday evenings from 7 to 9 p.m. On Saturday mornings there is a special clinic for children. Telephones: Hospital, Milton 2310; O.P.D., Beach 3430 and 2040. Milton cars from Forest Hills pass the Hospital.

THE NORFOLK DISTRICT MEDICAL SOCIETY—A regular meeting of the Society will be held at Masonic Temple, 171 Warren St., Roxbury, February 28, 8.15 p. m. Telephone Roxbury 56089. Business. Communications: Blood Cultures in the Diagnosis of Disease, F. P. McCarthy, M.D.; The Physician and the Laboratory, F. H. Dunbar, M.D. Refreshments after the meeting. C. D. Knowlton, President; Bradford Kent, M.D., Secretary, 798 Blue Hill Avenue, Dorchester.

A CLINICAL MEETING will be held in the Auditorium of the Beth Israel Hospital on Tuesday evening, February 28, at 8.15 p.m. Program: "Traumatic Surgery and Infections of the Hand," Drs. Torr W. Harmer, Arthur W. Allen, Carl Bearse. Refreshments served. Physicians invited.

THE HARVARD MEDICAL SCHOOL RESEARCH CLUB meeting to be held on Friday, February 24th, at 12:30

o'clock, will be addressed by Dr. W. D. Reed on "The Production of Heart Murmurs"; Dr. W. R. Ohler, on "The Practical Value of Glucose Tolerance Tests"; Dr. Thomas E. Buckman, on "Hemocidal Properties of the Blood." Each of the above talks will be of ten or fifteen minutes' duration, and will be held in the Amphitheatre, Building A, Harvard Medical School.

OUT-PATIENT STAFF MEETING.—The fourth monthly meeting of the Out-Patient Staff of the Massachusetts General Hospital will be held in the Lower Out-Patient Amphitheatre on Wednesday, March 1st, at noon. Following is the program: "Syphilis as an Etiological Factor in Nephritis and Diabetes," Dr. H. D. Lloyd; "Pityriasis Rosea as a Complication in Early Syphilis," Dr. George A. Dix; "Development of Neurosyphilis during Antisyphilitic Treatment," Dr. H. C. Solomon; "Syphilis as a Factor in Hypertension," Dr. Howard Jackson; "Therapeutic Tests in Suspected Syphilis," Dr. Austin W. Cheever; "A Case Report: Scabies, Syphilis, Arsphenamine Dermatitis and Industrial Dermatitis," Dr. Guy Lane; "Some Important Minor Signs of Late Congenital Syphilis," Dr. C. Morton Smith. Physicians, nurses and students are cordially invited.

The Massachusetts Medical Society

The Secretary's report of the Stated Meeting of the Council held February 1, 1922, at the Boston Medical Library, will appear in full in next week's issue of the JOURNAL, dated March 2, 1922.

NOTICE TO THE FELLOWS OF THE MASSACHUSETTS MEDICAL SOCIETY.

CHANGES OF ADDRESS.

In view of the action of the Council, February 1, 1922, in advancing Librarian E. H. Brigham to the honorable position of Librarian Emeritus, after a continuous service of thirty-seven years, in future, all communications as to the membership, especially changes of residence and address, should be sent to the Secretary of the Society, who keeps a constantly corrected official list of the Fellows and their addresses.

SURGICAL SECTION SUFFOLK DISTRICT MEDICAL SOCIETY.

A MEETING of unusual interest will be held February 23 at the Medical Library, at 8 P.M. Dr. Joseph C. Bloodgood, of Baltimore, will speak on Border-Line Breast Tumors. There will be lantern-slide illustrations.

[NOTE: The attention of the profession is called to the small attendance at previous meetings. At a recent meeting, Dr. Downs, of New York, had an audience of only forty. About a year ago, when Dr. Gibbon, of Philadelphia, spoke in Boston, only twenty-five attended. Boston should extend a courteous welcome to visiting men from other cities. Eminent men should have the encouragement of a large audience.—EDITOR.]

The Boston Medical and Surgical Journal

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Address.

ADDRESS BEFORE THE WORCESTER DISTRICT SOCIETY, OCTOBER 12, 1921.

BY E. H. TROWBRIDGE, A.B., M.D., F.A.C.S.,
WORCESTER, MASS.

MR. PRESIDENT, HONORED MEMBERS OF THE MASSACHUSETTS MEDICAL SOCIETY AND FELLOW MEMBERS: At the September meeting of the District Society, held in Worcester, some reference was made by the Chairman of a special committee, as to the lack of harmony amid the medical profession, as gleaned by him from a large correspondence with the various members of the Society.

In view of this fact, the speaker was invited by the President to present this paper, embodying the relation or duty of the physician to himself, to his confrères and to the public at large.

First. The duty of the physician to himself. This is a time when the medical schools, more than ever before, are giving to their students the most wonderful opportunities for laboratory, clinical and experimental research, for the sole purpose of producing a well-educated, thoroughly trained and accomplished practitioner in the art of the practice of medicine and the science of surgery.

Coupled with all this preliminary, is the hospital experience, which is of inestimable value. The last résumé of medical students for the year ending June 30, 1921, including pre-medi-

cal, special and post-graduate, was 14,872, an increase of 784 over last year. 14,033 were in regular colleges; 440 were in homeopathic; 98 in eclectic and 30 in nondescript colleges. I mention these figures to show how many are preparing to enter the profession and need ethical instruction.

In the examination held in Boston, March 8-10, 1921, by the Massachusetts Board of Registration, 13 subjects were covered, including 70 questions. An average of 75% was required to pass; of the 47 candidates examined, 18 passed and 27 failed, and so the medical student of today enters the profession thoroughly equipped for vast achievements.

During all this preparatory life there was always some one professor or some instructor or some practitioner, who stood out above all others as both the ideal and the idol to emulate. I presume every person in this audience pictures in his memory some one of his beloved instructors. I crave your indulgence in making the following personal reference. It was my good fortune in student days to be stimulated in anatomical studies by Frederick Henry Gerrish, that accomplished anatomist and surgeon; to serve under the skilled surgeon, the late Stephen H. Weeks, and later on with that versatile, and peer of gynaecologists, the late Seth C. Gordon, and, finally, in post-graduate course, under that prince of men, the late Maurice H. Richardson. Do you wonder why I mention these men? They were peers in the

profession—they taught, preached and practised the ethics of the profession; they were beloved by mankind; they were worthy to emulate.

In medicine, in law, in the clergy, in industrial life, there is the ethical side which is the center piece, maintaining and holding inseparable the superstructure. Without ethics, this world would be in chaos. How is it in medicine? Consulting the last catalogues from Harvard, Yale, Cornell, and the University of Pennsylvania, the subject of ethics is not mentioned or referred to.

During my membership in this Society, I have never heard read a paper on professional ethics, nor have known of that subject presented for discussion; furthermore, I have never known of the Society discussing the business side of our professional life. These two very important subjects, together with the art of dealing with human nature, should have more pronounced consideration in the medical curriculum.

Instead of the individual practising medical ethics, it sometimes appears as though the word "ethics" was unknown to the profession. The question might very fittingly be asked, "What do we mean by ethics?" My interpretation of the word is the sense of duty and the character and authority of moral obligation. It is the golden rule of the Scripture—it is the Rooseveltism of the present time.

The general practitioner of former days endeared himself, because he was the embodiment of knowledge such as was then taught; a counselor to the sick and adviser to the healthy; an advocate of all that was ennobling and beneficial to the community; honest to himself; attentive to his patients and faithful to his manifold duties.

No less so is the doctor of today, though in a different degree, because the field has so expanded that it is practically impossible to assume all the duties, as once prevailed, and hence, the various special divisions of medicine and surgery have furnished men skilled in their special subjects. By reason of this diversity, the subject-matter of ethics has assumed a more important phase and is today an all-absorbing topic.

The doctor of the present time, by reason of his education, his special training, the various and manifold facilities at his disposal to solve the perplexed problems of human life, owes it to himself to arrive at as correct a diagnosis as possible of every case submitted to him; to render an honest opinion as he views it, and give the most rational and correct advice to his patients.

Practically, there are only two questions which every patient asks, and, consequently, two answers. First, what is the matter, and second, what is to be done to relieve or produce a cure; and when the physician has honestly

and conscientiously answered these two questions, he has fulfilled his duty to himself.

Second. His duty to his confrères. This division of the subject opens up, possibly, one of the most perplexing topics for consideration and discussion. We ask ourselves, "Who is our confrère?" Is every person authorized to bear the title of physician a confrère? The only version of the word that I am willing to accept, embraces those who have graduated from a regularly recognized medical school. Having, then, received the degree of M.D., the world is open before us, and the pathway unobstructed.

Mankind in all forms and phases must receive care and attention from the profession. New associations and affiliations with our confrères present themselves every day. Personal competition confronts us continually. Taft and affability strive to overcome the obstinate, the discourteous and the jealous.

Every man is a law unto himself as far as ethics is concerned, whether in dealing with his confrères as individuals, or as a group in the form of medical or surgical associations, or with hospitals, or with State and local Boards of Health, or in the so-called group medicine, or with insurance companies, or in medico-legal jurisdiction or in State insurance, or compulsory health insurance. Amid all these associations, differences of observations, opinion and judgment must necessarily arise. Because of these differences, it does not necessarily follow, but that the judgment of each and every one is entitled to due and respectful consideration and not ignominiously criticised by those not thoroughly familiar with all the data thereof.

We have all had our share of experiences, some more, some less. Only about two months ago, a former patient of many years past, and now a resident of another State, entered the office and, in course of conversation, asked me about an operation performed upon her fifteen years ago. On looking up her record, I found that she had Edebohl's operation for nephropexy. After informing her of what had been done, she politely told me that she had recently undergone an examination and in the course of such, the contracted scar was noticed and inquiry made as to the condition requiring operation, and on informing the examining doctor that she had had her "kidney sewed up," as she expressed it, he exclaimed, "I do not believe you had anything of the kind done." This remark so disconcerted the patient, that she very forcibly expressed her opinion to the consulting surgeon.

What right had this doctor to be so unethical as to express himself, not knowing anything of the condition existing fifteen years ago, except what the patient disclosed? It is just these like experiences which sow the seed of distrust and

cause the lack of harmony among brother doctors.

Mrs. B—, in 1918, was seen and examined by a very accomplished physician, who readily and correctly diagnosed the case as cancer of the cervix uteri. She was referred to the speaker. The case was so bad that an unfavorable prognosis was the only rational and justifiable opinion to give. The patient and her husband were duly informed of the true condition, and it was advised to remove all the diseased area, and then to receive the benefit of radium as the only means of prolonging life.

Due correspondence was entered into with the authorities where radium was to be given, and the case fully described, and our plan mapped out, viz.: to fulgurate all the diseased area and remove all the cauliflower growth, reach a base where the application of radium would have an immediate effect.

After the case was seen by the authorities who were to administer radium, they wrote of the hopeless condition, but would give the patient the benefit of the radium, in order to give some relief, if possible. Several treatments of radium were given, with some apparent evidence of improvement; but finally the hopelessness of the case became so manifest, that it was impossible to continue radium treatment and the patient died at one of the hospitals in Worcester.

At about the time of the last treatment, the authorities were questioned by the patient, as to the effect of the radium, in the hope of cure, and, much to their amazement (as well as to my own), for they had known of the correspondence, they replied, "Well, if we had received the case earlier, we might have been able to have done more for her than we have," leading the patient to believe that she should have been sent there long before she was, practically an impossibility,—a reflection on the previously advised treatment, and a slap to the one who referred the patient to the hospital. Such unethical demeanor was not justified.

I might cite many, many cases where patients have been given a diagnosis entirely at variance with that of their family physician, and that, too, with some unfair remark. When such is done, disloyalty to the fellow practitioner is shown, and, too, the patient is not treated fairly in the eyes of those she may have previously consulted. On the other hand, it is not right to tell a patient that a mass in the breast does not amount to anything, when it is a serious question as to the condition being benign or malignant.

It is not right to tell the woman with a fibroid causing profuse menorrhagia, that an operation is not necessary to relieve the persistent loss of blood which is causing the anemic condition. In the various multifold relations, as before mentioned, no doubt differences among fellow practitioners will prevail, yet if the ethical

feature is duly considered and practised, I feel sure that whatever lack of harmony now exists will be dispelled in the future.

It would be an enormous undertaking for the speaker to try to analyze all the various relations of the members of the profession, and attempt a rational solution of the various phases wherein lack of harmony prevails. Personally, I consider our relations at the various medical and surgical meetings to be of the most efficacious for the development of brotherly feeling; to stimulate more and more an unrestricted co-operation in all matters pertaining to the welfare of the profession. The responsibility of making meetings like this of mutual benefit, socially, intellectually and professionally, cannot be shouldered by the few officers, but must be aided by a hearty coöperation of the individual members, and that means every one of those here present, and especially applicable to those absent—without a justifiable cause.

It is at these meetings where opportunity is offered to discuss and thrash out any and all matters pertaining to the interest of the profession. We cannot shut our eyes to the new propositions, the new philanthropic endeavors, new advanced legislative measures, new theories and new discoveries in the causation and treatment of diseases, now under laboratory investigation; various excuses for evading the well-recognized and accepted health and sanitation laws.

I suppose it might be said that human nature is about the same from one generation to another. Granted that it is,—though I doubt it, the next generation of medical men will have problems to solve unheard of to those of the present generation.

During the brief seven years past, the medical profession were confronted with a situation the like of which no one mind could have ever conceived. What noble and unselfish sacrifices were made for the sake of suffering humanity; for the preservation of the Government; for the welfare of the whole world! Every physician who entered the Service, so entered because he believed it was his duty.

The wide field of experience—the intermingling with officers, both of superior and inferior rank; the varied and multifold duties requiring accuracy and punctuality; the more extensive study of disease and intimate knowledge of human nature—have contributed to make every member of this profession more charitable, and more respectful of his fellow practitioner.

It is my belief, that deep in the heart of every physician there is always present the desire to do right; to render such service as is within our power, both by word and deed, for the good and welfare of every brother doctor. Sometimes there arise innuendoes which have a tinge of jealousy. I well remember the story as related by one of the professors during my

student days. He was describing the history of the stethoscope, and held up to view two models—one, the old-fashioned wooden piece, bell-shaped at each end, and one end applied to the chest wall, the other placed snugly to the ear; the other was a bin-aural, somewhat similar to that of the present day. It so happened that among the doctors in a certain town, there was one especially progressive, and on his visit to New York, he purchased the most recently improved bin-aural stethoscope. As time went on, he naturally discarded the old style and used the improved one. One of his confrères, who had not become familiar with this improved style, being informed that Dr. A— was using this style of stethoscope, remarked, "Well, that style was made for those whose hearing was slightly defective, as both ears could secure the sounds, but when the sense of hearing was not impaired, the wooden instrument could be just as satisfactorily used." Do you believe that that remark had its psychological effect and created in the minds of his hearers the impression that possibly Dr. A— was a little "hard of hearing," as is the laity phrase? Certainly, we are truly responsible for such acts, whether affecting us individually or having a wider influence and effect on our confrères.

I once heard a noted surgeon make this comment, that in his work he was governed by the thought that he should do for his patient that which he would want the patient to do for him, if the patient was the surgeon and the surgeon the patient. So in our relation to our confrères, let us extend the same courtesy as we would wish extended to us.

If there is apathy or indifference or lack of harmony among the medical profession, it is about time that it should be dispelled. The cause, if any does exist, should be diagnosed and the remedy applied. In the near future, and perhaps I may not be so far out of the way to say that just now, there is the greatest need and demand for the profession to co-operate in the fullest extent. But how can a hearty coöperation be expected if the ethics of the profession are so ignored, or so loosely observed as to have no weight or influence at all?

In my judgment, the solution of this question resolves itself in having a code of ethics and that code lived up to. Such cases as I have cited—the individual doctor and the hospital—are being duplicated every day and you and I both know it. It may be that we are too self-centered, or think or imagine that we are infallible, or deceive ourselves that one's vast experience and knowledge tends to an assurance of superiority, and permits an expression of opinion of authority, but such a psychological attitude is not conducive to the best interests of the profession as a whole.

Third. The relation to the public at large: The influence and weight of authority of the

medical profession practically dominates every community. The doctor in his individual capacity is responsible for the health of the community. We deal with three classes, *viz.*: the ignorant, the fairly well educated and finally, the educated. In whatever class the individual may be, he consulted the particular doctor because he has confidence in him, or because so directed by those who know of the abilities of the doctor and vouch for him. In other words, every doctor, so to speak, builds up his own reputation according to just such valuable service as rendered to the community as a community, or the individuals of that community.

The opportunities for so doing, however, may not present themselves as quickly or as numerous as might be desired. It takes time for a business house or firm or corporation to acquire a business reputation, so it takes time for the doctor to acquire his reputation. The physician is placed on his own initiative, on his own tact, on his own judgment, in deciding what to do and how to do and what not to do.

The young graduate of the present era is obliged, like his predecessors, to abide his time, unless pushed ahead by senior associations or by hospital affiliations, or by such varied means as contribute to his advancement. Suppose, however, he enters the community unheralded and unknown. What, then, is the ethical method of procedure to ingratiate himself in the community?

The business side is all-important, unless the physician is not obliged to depend upon his meager income for support. Many a prominent man in the profession has had a stormy entrance into medical success.

This opens up the great question of ethics, for, in the near future, I fully believe that the profession will be so listed in *that* form acceptable to the Medical Society as sponsor, indicating what is the particular or special subject the doctor is to devote his time and practice. If you look through the last *Directory* of the city of Worcester, you will see a list of the members of the Massachusetts Medical Society—Worcester district,—but by that list every doctor is alike to the reader; no indication as to whether in general practice or special department.

If it is sometimes difficult for us to select for a patient some one in a special line, how much more difficult for the average citizen to make a selection of a specialist?

I would even advocate that the doctor's name in the telephone directory have appended the special designation of his line of practice, duly sponsored, however, by similar registration with the Secretary of the Medical Society. By so doing, the ethical feature is not trespassed upon; the community can become familiar with the various physicians in special work, and can be depended upon because of the sponsorship of the Medical Society.

The professional attitude to the patient is probably the first consideration, and that can be summed up in a very few words, *viz.*: to render the best service that lies in one's power to give, that service rounded out by knowledge and valuable experience.

The next phase—the *business or financial aspect*. I do not believe that any man ever entered the medical profession allured by the thought of large financial returns. The profession is entered because of love and personal adaptation for it, but after the long training is finished, then the financial side has a very necessary and important bearing to the large majority. The business attitude toward the patient should be governed by his situation in the business world and the value of the services rendered in his behalf.

What shall be the attitude, however, toward various corporations where the doctor is only sent for in grave emergencies or severe infections, and someone else, other than the doctor, assumes the other responsibilities of treatment? What about the attitude toward insurance companies, who ask for the report of cases, without any remuneration, when the patient has, on his own volition, consulted you for treatment? What attitude of the profession toward legislative measures, such as the Sheppard-Towner bill and other measures affecting the just rights of the medical profession?

Are we, as a body, to "sit tight," so to speak, and allow someone else to engineer legislation unfavorable to the profession? Do you realize what valuable services one of our members, Dr. S. B. Woodward, rendered to the Massachusetts Medical Society when he occupied the presidency two years ago? That the profession is rendering valuable service to the community, I need cite only a few instances, and among the most notable is the efficient work of Dr. Copeland, the Health Commissioner of New York, whose administration is a marvel of the present decade. Also, Dr. Harris, the Deputy Commissioner of Police, who has devised and laid out a traffic system that is saving New York endless inconvenience, annoyance and time; Dr. Carlton Simon, Deputy Commissioner of Police, in charge of the narcotic bureau, has had a herculean task, but has met the situation with marked courage and ability, and has handled the problem with such energy and intelligence as to receive universal commendation. The nefarious schemes of the narcotic crooks are being squelched and the community protected. Dr. Chandler, the commanding officer of State Constabulary, is equally efficient in his field and has displayed wonderful administrative ability, tact and skill. That Dr. Herbert Work, the president of the American Medical Association, has been appointed an assistant Postmaster General, is another tribute to the medical profession.

What about our attitude to the various cults that are striving for public recognition? What

is our attitude toward the propaganda recently issued by the trustees of the Johns Hopkins Hospital? What a slap to their own hospital staff, as well as to the profession in general, in trying to establish a maximum fee for operations and a weekly fee for hospital attendance.

Think you that the trustees of this or any hospital would relish the idea that only a limited amount of money could be given or willed to their respective institutions when today every hospital is in need of extra funds? It is just as unreasonable and inconsistent to limit the professional fee by any board of trustees (hospital) as for the Bar Association to limit an amount for a retainer for any of their members. The time is coming when the members of all hospital staffs will be paid for their services.

What is our attitude toward the anti-vivisectionists? "The Truth about Vivisection." We quote the following from *Science*, Sept. 16. In the *Woman's Home Companion* for July, 1921, is the best paper on this subject I have ever seen, called "The Truth about Vivisection," by Mr. Ernest Harold Baynes. Mr. Baynes first read the literature on both sides, and then visited practically all the laboratories from the Mayo's at Rochester, Minneapolis, to the eastern seaboard. He visited, especially, the Rockefeller Institute several times, also a number of European laboratories. He became thoroughly convinced (1) that the experiments were not cruel; (2) that the statements in the literature of the anti-vivisectionists were often garbled and utterly misleading; and (3) that the results to animals themselves, as well as to human beings, were of enormous benefit. Then he wrote the article, and Miss Lane, the editor of the *Companion*, bravely printed it.

The especial significance of his writing such an article lies in his nation-wide reputation as a lover of animals and their protector. He is the father of all the bird refugees in the United States. His lectures on animals have been heard everywhere, and when he approves of the experiments on animals, everyone knows that he has good reasons for doing so.

The fury of the anti-vivisectionists at once rose to fever heat. The New York Anti-Vivisection Society, through its president, Mrs. Belais, sent out an extraordinary appeal calling him "One Herbert Harold Baynes," almost as if one should write, "One Herbert Hoover." In a paragraph, all in capitals, Mrs. Belais called on all lovers of animals to help crush Miss Lane financially, not only by canceling their own subscriptions, but by urging all their friends to do the same,—a nation-wide boycott.

This extraordinary method will ensure a reaction in favor of Miss Lane because of its vindictive unfairness. It is not argument; it is persecution, and it is illegal.

Mr. Baynes has also been attacked by mail and by cancellation of engagements. It is up to us to sustain so doughty a champion. He has given

the anti-vivisectionists the hardest blow I have ever known in forty years. (W. W. Keen.)

What is the professional attitude toward anti-vaccinationists? Read the valuable articles in the *BOSTON MEDICAL AND SURGICAL JOURNAL*, August 25 and September 15, and anyone in doubt will certainly be convinced of the efficacy.

There is one aspect of our relation to the public at large which would require more than one evening to consider and discuss, and I cannot attempt to go into it, but only mention that aspect, and that is, the applied psychology to medicine and surgery; see to it that what we say is thoroughly understood and not misconstrued; that our acts are not misjudged; that our recommendations are correctly interpreted; that whatever comment is made is free from unfairness.

In this Commonwealth it is estimated that there is three and one-half million of population and over six thousand registered physicians. Is there any class other than the physicians that render the community such valuable service without compensation in hundreds and hundreds of cases? Does the community appreciate the sacrifices many times made by the physicians in administering to the multifold needs of this vast population?

It would seem sometimes that no thought of appreciation is conceived by the public of what the doctors are daily doing for the health and welfare of those who frequent the large number of hospitals throughout the State where the services are gratuitously given. In recognition of this service alone, the State owes the medical profession a protection of their just rights against their encroachment, by legislative action, favoring various cults and other scheming bodies, to impose upon the people of this commonwealth. Sometimes at the State House it appears as though the medical profession was without a single friend when these various matters are being considered. The time is ripe to convince the public that the medical profession is working for their interests in thousands of ways. It devolves upon the Medical Society and various members to cement a closer tie between the medical profession and the public. That the all-important problems to solve: *first*, how can that be accomplished; *second*, what must be done; and *third*, how can the Medical Society have more influence?

The first can be answered by taking the public into our confidence, and prevent their being alienated from the honest and loyal practitioners, by all sorts and forms of quackery, under disguised names, knocking at the legislative doors for recognition. Second, the profession must act as a unit, to protect its own interests and rights, and not show any luke-warm interest in those matters that are of a public nature. Third, the society can have more influence if the members of the profession assumed more individual responsibility in public affairs.

That feature presents the apprehension that it will detract from the doctor's professional

standing; hence if such apprehension can be dispelled, then the field is open to the profession to render still greater service to the public at large.

In conclusion, I would favor a printed code of ethics placed in every doctor's office, so that it can be seen and read and not tucked away in some obscure corner or secreted in some never-opened drawer; this would dispel any misunderstanding or ignorance on the part of the public as to the ethical relations of the medical profession. I would favor the enrollment of every physician in the regular city directory and telephone directory, under the sponsorship of the Medical Society, of their special department of medicine and surgery. I would advocate the more general participation in general public affairs.

I hope that you will pardon me if I have trespassed on your time longer than I intended. I do not wish to appear in the slightest degree too critical—that would be very unbecoming to anyone of us—but I do appeal for a hearty and fraternal co-operation among the members of this noble profession, remembering that a man who does his duty, honestly and sincerely, will be looked upon by his fellow-men with honor, respect and admiration.

The New England Surgical Society

EXPERIENCES WITH TUMORS OF THE SPINAL CORD.

BY W. J. MIXTER, M.D., BOSTON.

Assisting Surgeon, Massachusetts General Hospital.

DURING the past ten years it has been my good fortune to care for a number of cases that come under the heading of cord tumor. Strictly speaking, only a small part of them are tumors of the spinal cord, but all of them show definite cord symptoms. Perhaps a more exact definition of the group would be cases of apparent chronic cord compressions of non-traumatic origin. One of the main reasons I wish to present this group at this time is the great variety of diagnoses met with, which may give the symptom complex which we associate with cord tumor.

The group comprises some fifty-four cases, and some twenty-one different pathological processes were encountered (Chart No. 1). I have been able to keep in touch with all these patients so that the end-result, or rather the present condition of the patient, is known in each case. In analyzing this series, we find that it may readily be divided into four groups, depending on the structures primarily involved, as follows: (1) Lesions of the cord itself; (2) Lesions of the nerve roots and meninges; (3) Lesions arising in the spinal

CHART 1

	Immediate results																Late Results			
	Incidence of operation					Untreated cases														
	Total number	Laminectomies performed	Operative—death	Operative—lesion found	Operative—lesion not found	Improved	Unimproved	Died in hospital	Number of cases	Died in hospital	Well	Much improved	Slightly or temporarily improved	Unimproved	Died from intercurrent disease	Died from the lesion				
Lesions of the cord	4	4		3		1	2		1	1			1	2		2				
Glioma	2	2		2			2						1		1					
Intra medullary cyst	2	2		2		2						2			1					
Cholesteatoma	1	1			1			1												
Tuberculosis	1	1		1			1									1				
Syphilis	1	1		1			1							1						
Varix	1	1		1			1													
Tumor of membranes and nerve roots																				
Arachnoid fibroma or endothelioma	4	4		4		3	1				1	2	1							
Dural cyst	1	1		1		1							1							
Fibrosarcoma of dura	1	1		1		1						1								
Neurofibroma	4	5		4		4					2	2								
Dermoid cyst of cauda equina	1	1		1			1							1						
Fibro sarcoma of cauda equina	1	2		1		1						1								
Adamantinoma of cauda equina	1	1	1	1				1												
Lesions arising in the spine																				
Enchondroma	2	4		2		2							1			1				
Chondrosarcoma	1	1		1			1						2			1				
Round cell sarcoma	1	1	1	1				1												
Giant cell sarcoma	1	1					1									1				
Myeloma	2	2		2			2									2				
Metastatic carcinoma	9	1		1		1			8				1			9				
Metastatic hypernephroma	1	1		1			1									1				
Metastatic leiomyoma	1	1		1		1							1			1				
Tuberculosis (of spine)	3	3		3		2	1					1	1			1				
Negative explorations																				
Degenerative lesions of cord	5	5			5		3	2						2		1				
Pathology unknown	4	4			4		4							2		2				
Totals	54	50	2	34	10	19	21	5	9	1	3	9	10	8	2	23				
Spinal Cord Tumor Cases																				

column; (4) No lesion found at operation. Group 1 shows eleven cases with unsatisfactory results, but this is rather to be expected, as many are intra-medullary lesions, whose removal is impossible.

The cases falling in Group 2 are our prizes, for here we find, for the most part, encapsulated tumors and, moreover, tumors which can be enucleated without danger to the spinal cord. In this group I have three cases which may be classed as well as they are without subjective symptoms, function is perfect and neurological examination reveals no variation from the normal other than somewhat hyperactive knee-jerks. The tumors of this group have been encountered and removed at various levels from the cauda equina to the second cervical segment.

Group 3—Lesions occurring in the structures of the spinal column, either original or meta-static, are most unsatisfactory, owing to the great predominance of irremovable malignant disease. Here the problem becomes one of palliation and relief of pain. The bone lesions are in a large part malignant, are demonstrable by x-ray, and their most outstanding characteristic is severe pain. Relief of pressure by laminectomy is so satisfactory at times that even in these malignant cases it may be indicated.

The cases of Group 4 comprise those in which no gross lesion could be demonstrated at operation. In this group naturally fall the cases of lateral tract degeneration, combined system disease, transverse myelitis of infectious origin, etc., which at times closely simulate cord tumor. The group is quite a large one, as I have explored a considerable number of cases where tumor was a possibility, though the chances were that one of these other irremediable conditions

was the cause of symptoms. My rule at present is to operate on any case presenting signs of a definite cord lesion, even if the degenerative processes are strongly suspected. A patient with lateral tract degeneration, syringomyelia or some similar lesion, is in desperate straits, useless to himself and hopeless of cure. Two cases in which such a diagnosis had been previously made and the patient given up as incurable, showed at operation easily removable dural tumors, and one of them, six years after operation, is one of the three classed as well. She has been working steadily since nine months after operation.

Dr. J. B. Ayer has given us, with the combined puncture of the cisterna magna and the lumbar space, a very valuable means of differentiating between the degenerative lesions and those in which surgery may be successful. It is, I think, one of the most important advances in neurological study, but its use should be restricted to those thoroughly versed in the procedure. It should not be performed on every cord case, and only with a full realization of its difficulties and dangers. I have operated on some 18 cases following double puncture and have always found tumor, if indicated by puncture. I did find compression from cyst in one case where the puncture was negative. With this one exception, it has always been accurate. When these results have been confirmed by a larger series, we will be in a position to refuse operation on a considerable number of patients who now present themselves as cord tumor suspects.

Were it possible to differentiate between these different groups of cases prior to operation, as in neoplasm elsewhere, we could give a much more accurate prognosis, and many incurable patients could be spared the suffering of an unsuccessful operation. This, however, we are unable to accomplish with our present knowledge, and hence must operate on practically every case, except those in which malignant disease can be definitely proven.

Under treatment, I have little that is new to offer, for the technique of laminectomy has been well worked out. Wide exposure is essential, and for that reason short incision and unilateral laminectomy are both to be condemned. By means of careful dissection close to the bone, the muscles can be drawn aside with comparatively little hemorrhage. There is one point on which I want to lay emphasis, as in my hands it has done a good deal to shorten the operation and lessen hemorrhage. I have found that after the dissection has been completed on one side the spinous processes can be undercut close to the laminae, with heavy forceps, and turned aside with the muscles of the other side. It is necessary to undercut one spinous process above and one below the laminae whose removal is contemplated. This is done, however, without addi-

tional dissection. The interspinous ligament is preserved with the spinous processes, thus considerable dissection is avoided and a structure of great strength is retained, while the exposure obtained is just as satisfactory as if the spinous processes are completely removed. The laminae are then removed, care being taken to prevent damage to the underlying cord, particularly if it is pushed back against these structures by neoplasm lying anterior to it. Wide exposure is of the greatest importance. Careful hemostasis is now secured, and a thorough inspection of the field made before the dura is opened. At this time the tumor can usually be demonstrated either as a definite mass lying outside the dura or as a swelling within it. An extra-dural lesion should be treated without opening the membrane, unless it lies directly in front of the cord, and whether benign or malignant, an attempt should be made at its removal. If the lesion is within, or arising from, the dura, the dura is opened and the cord inspected. If the new growth is outside the cord, it should be excised at once, cutting away dura or nerve roots involved, if necessary. It is frequently possible to dissect off nerve roots that seem at first to be very deeply involved in the tumor.

Should the tumor be intramedullary, the cord is split over the tumor mass in the hope that it will extrude, and may be removable at a second sitting, as advised by Dr. Charles Elsberg. Personally, I have yet to see a successful result following this procedure, but my experience with this type of case has been very limited. Removal at once of an intramedullary tumor is not to be attempted on account of damage to the cord. Cyst evacuation is indicated and the result may be extremely satisfactory. Dr. Harvey Cushing has taught us that nerve tissue must be handled delicately and without trauma. I can only add that in the surgery of the cord, gentleness and delicacy of manipulation are essential if success is to be attained. Closure of the wound is modified by suturing muscle and fascia to the retained intraspinal ligament rather than to the muscles of the other side. The resulting scar is just as flexible as in the usual form of laminectomy and is much stronger, which must be of benefit, particularly in the cervical region.

Under post-operative care, I wish to mention the fact that plaster shells and other rigid supports are unnecessary, even in high laminectomies. The patients are much more comfortable, and the result is as good with a simple dressing. The one exception to this rule is where there is an extensive destructive process of the vertebral bodies. X-ray treatment following operation, is without doubt indicated in the gliomata as well as in the more definitely malignant growths. I have one case where an extensive infiltrating glioma of the cervical cord was exposed and the cord split

in the hope of extrusion. No further operative measures have been carried out as yet, as the patient has shown marked improvement under x-ray treatment.

The differential diagnosis of cord lesions depends on careful, painstaking neurological examination, good x-rays and the examination of the spinal fluid, as previously indicated. Cord tumors have been treated for chronic appendicitis, gall-bladder disease, and various orthopedic and genito-urinary troubles, as well as diagnoses as degenerative processes before coming to operation. In order to obviate these errors, we must have the most complete coöperation with our neurological colleagues. This I have had, and I take pleasure in thanking the Neurological Department at the Massachusetts General Hospital for the able assistance and counsel they have given me.

CHART 2

	Number of Cases	Well or Improved	Unimproved	Dead
Lesions of the Cord	11	3	3	5
Tumors of the Membranes and Nerve Roots	13	11	1	1
Lesions Arising in the Spine	21	3	1	17
No Gross Lesion Found*	9	0	4	5
Total	54	17	9	28

*Degenerative Processes, etc.
Present status of all Cases

CHART 3

	Number of Cases	Operations	Operative Deaths	Well or Improved following operation	Unimproved by operation	Now Living	Late Deaths
Lesions of the Cord	10	10	0	4	6	6	4
Tumors of Membranes and Nerve Roots	13	15	1	11	1	12	0
Lesions Arising in the Spine	13	15	1	6	6	4	8
No Gross Lesion Found*	9	9	0	0	9	4	5
Total	45	49	2	21	22	26	17

*Degenerative Processes, etc.
Operative and End results in operated Cases

In this group of 54 cases, laminectomy was performed on 45 patients, the other nine being deemed inoperable. In these 45, forty-nine laminectomies were done, with two deaths, a mortality of 4.1%. In one instance, a tumor was found at some distance from the situation expected, and operation was unjustifiably prolonged and the tumor removed at one sitting instead of being completed at a later date. The other death, a few hours after the removal of

a small specimen of malignant new growth from the deep tissues of the back, was unexplained, though possibly it was from embolus. There were no other deaths that could be laid even remotely to the operation. Twenty-six patients are now living; of these, three are well, eight so much improved that they are or could be self-supporting, eight are somewhat improved, though still incapacitated, and seventeen have since died. Of these, two died of other diseases, one following definite improvement. The other fifteen have died as a result of the disease for which they were operated, or from sequelae.

In closing, I wish to point out that chronic cord compression is more common and more amenable to treatment than I, at least, had believed. Also that on careful study, a number of supposedly incurable paralytics will be found to reveal the opportunity for well-nigh marvelous surgical results, and that the risk of operation is hardly greater than in many of the more serious abdominal lesions.

DISCUSSION OF DR. MIXTER'S PAPER ON LESIONS OF THE SPINAL CORD.

DR. WILLIAM J. MIXTER, Boston: I would like to add that one of the most striking results I have seen was in a case operated on by Dr. Porter, and I hope he will speak about it in the discussion.

DR. CHARLES A. PORTER: I will speak of a case which I operated upon, while in charge of Dr. Mixter's specialty, during the war. A young boy had acutely increasing symptoms of paralysis, due to a lesion in the cervical region. I performed a laminectomy, and found enchondroma growing from the body, and adjacent lamina of, I think, the fifth vertebra, pressing on the cord. By pushing the dura gently to one side, I was able to curette away all the growth. In doing so, it became necessary to control, by packing, a severe hemorrhage from the vertebral artery. The wound was packed for a few days, and the boy made a satisfactory, and unusually rapid recovery.

DR. WILLIAM J. MIXTER, Boston: One of the particularly interesting points about that patient of Dr. Porter's which he has not mentioned was the question of diagnosis. The patient showed very definite neurological symptoms in both legs and fairly definite symptoms of increased intracranial tension. For this reason it was advised very strongly to explore his leg area on the left side, I believe. It was only discovered by very careful examination that he had a very definite atrophy of the muscles of the shoulder girdle, and then when a double puncture was done it showed a definite obstruction below the cisterna magna, and I think if the boy had not been kept under observation and had not shown this increasing atrophy of the shoulder girdle, and if cistern puncture had not been done, he would doubtless have been operated on for brain tumor with wide exploration and no tumor found. I think this is all I have to say except to reiterate that the most painstaking neurological examination is necessary and it requires rather expert neurological advice in order to give one that painstaking examination.

Original Article.

END-RESULTS OF THE SURGICAL
TREATMENT OF 48 CASES OF TU-
BERCULOUS CERVICAL ADENITIS.BY FRANK H. LAHEY, M.D., BOSTON,
AND
HOWARD M. CLUTE, M.D., BOSTON.

FOR the purposes of this investigation, all the cases of tuberculous cervical adenitis at the Boston City Hospital for the five years from June, 1915, to March, 1920, and likewise all the cases in private practice of one of us (F. H. L.) were considered,—totalling 132 in number. Owing to the type of patient treated at the City Hospital and the length of time that frequently had elapsed since operation, it was possible to trace but 46 of these cases. Nineteen, or 43.4 per cent., of this series of 46 were classed as excellent results: they showed no further evidence of tubercular glands, nor did they present any of the disabilities which were found among some of the remaining cases; with the exception of the scar upon the neck, there was no evidence of the disease or its treatment.

In twelve cases, or 26.08 per cent. of the series, we found evidence of paralysis of the trapezius muscle from interruption of the conductivity of the spinal accessory nerve or the third and fourth cervical nerves. Of this group all showed a clearly marked deformity, and only three of the twelve made no complaint of the resulting disability. Two patients in this series came to the City Hospital with a paralysis acquired elsewhere.

There was no case in the series with a sinus present at the time of examination. Two cases reported sinuses draining over a year. One sinus had closed unaided, and in the other case the patient has received tuberculin.

Five cases showed a paralysis of the depressor anguli oris muscle. No patient experienced any disability from this lesion, nor did the deformity seem particularly disfiguring.

Two cases were reported as having died since operation: one patient of pulmonary tuberculosis; the other of "intestinal trouble."

Tenderness over the scar was very marked in one case. This patient had had a complete dissection of the neck. She presented a thin, wide scar and atrophy of the superficial structure over the lower carotid sheath. The vessels were plainly visible under the scar and slight pressure caused pain.

In only eight cases did we find glands persisting after the operation: two of these showed evidence of an active process in the remaining glands; these particular cases have had several recent x-ray treatments with marked improvement.

The twelve cases of spinal accessory paralysis were divided among six different surgeons, indicating the possibility of this accident oc-

curring in any hands. In fact, it has occurred in our hands since this investigation was begun, in a patient whose spinal accessory nerve we carefully followed and preserved anatomically intact. The paralysis resulting from the dissection was possibly due to our pinching the nerve to establish its identity. As far as could be ascertained from the records, but two of these cases in which paralysis occurred were of the bloc dissection type of operation.

The problem of the treatment of tuberculous cervical adenitis has been by no means a settled one. Surgeons must admit that "bloc dissections" result in spinal accessory or third and fourth cervical nerve paralysis, with consequent functional disability, too often to permit its being resurrected from the oblivion into which it has, for the most part, sunk in the treatment of tuberculous cervical adenitis. On the other hand, hygiene, x-ray, and tuberculin are by no means the sovereign remedial measures we could wish them to be in the treatment of this condition. There exist cases in which not necessarily "bloc dissection," but certainly a very complete neck dissection will be necessary, and, on the other hand, there likewise exist many cases capable of being relieved of this condition by one of the non-surgical procedures cited above. Unfortunately, the great majority of the cases exist in the group just between these two extremes, and it is our belief that in this group combined methods, surgical and non-surgical, must very frequently be employed.

We feel, in the first place, that if prompt and active treatment could be instituted and adhered to in cases as soon as they manifest this condition, together with adequate attention to unsatisfactory conditions of tonsils or teeth, and also to other contributing factors, radical surgical measures would rarely be necessary. While we have no personal experience with the application of x-ray therapy in these cases, we have referred for this form of treatment and observed the outcome in a sufficient number of these cases to be convinced that it has a very distinct place in the treatment of this condition, not only as regards the firm, non-necrotic glands, but also for the closure of the tubercular sinuses which have resulted from the drainage of the liquefied ones. Liquefaction will undoubtedly follow radiation of some of the caseating glands, but drainage and, later, radiation of the gland shell, then become possible.

Surgery, in our opinion, should not be resorted to in tuberculous adenitis until x-ray therapy has been tried for a considerable period of time—from six months to a year—provided the disease is not spreading and involving the adjacent glands. While the disease remains confined to a few glands, nothing is lost by continuation of x-ray treatment, and we have been surprised in a few instances by

the diminution in size which occurred some considerable time after the beginning of the treatment.

Surgical removal of the glands, we believe, should be undertaken when, in spite of x-ray and hygiene (we have had no experience with tuberculin), either the neighboring glands are becoming involved, or, after fair trial of radiation, shrinkage is not apparent. We do not believe that where one or two large glands must be removed, x-ray failing, it is necessary also to remove the small, soft, non-caseous glands which surround them, but that these may well be treated by radiation.

We further feel that there exists a neglected type of tuberculous adenitis in which there is extensive involvement of practically all of the glands of the neck, and that this type is of such seriousness—not necessarily as of threatening life, but disfiguring, disturbing, and progressive—as to justify complete surgical removal even with its possibility of resultant spinal accessory or cervical nerve paralysis and its crippling functional disability due to loss of the trapezius muscle.

We do not believe that any one measure will yield satisfactory results in this condition, but that the combination of attention to infecting foci, radiation, hygiene, conservative surgery, and early attack on the condition will yield gratifying results.

Finally, we believe that whenever an extensive neck dissection for a not necessarily fatal condition is undertaken, one should have definitely in mind the possibility of spinal accessory paralysis, and that that paralysis is a serious one, limiting arm abduction to less than a right angle with the body.*

Book Reviews.

The Genuine Works of Hippocrates. Translated from the Greek, with a Preliminary Discourse and Annotations, by FRANCIS ADAMS, LL.D., Surgeon. William Wood & Co. Octavo. 766 pp.

Dr. Adams' translation of the *Works of Hippocrates* is the translation accepted by the Sydenham Society of London. In this edition, the writings of Hippocrates are carefully labelled as genuine, probably genuine, or quite probably not genuine. The works, themselves, are preceded by a Preliminary Discourse, dealing with the Origin of Grecian Medicine, the Life of Hippocrates, the authenticity of the different treatises ascribed to him, and the doctrines of the various Greek schools of physical philosophy.

No brief review of the teachings of this ancient master of medicine can adequately convey to the reader the keen insight, the meticulous attention to detail, and at the same time

the breadth of vision of Hippocrates. A part of his writings, as is to be expected, are amusing in their simplicity. "A woman with child, if it be a male, has a good color, but if a female, she has a bad color." "The male foetus is usually seated in the right, and the female in the left side." Many of his aphorisms, however, have stood the test of time and agree with medical opinions of today. The section on the management of fractures and dislocations is remarkable for its sagacity. Perusal of these writings of the "first physician" is good for the soul.

Pennsylvania Hospital Unit in the Great War.

New York: Paul B. Hoeber. 253 pp.

This attractive volume, of which only 1,505 copies were printed, narrates the history of Base Hospital No. 10, U. S. A. The Unit left America May 19, 1917, and taking over British General Hospital No. 16, at Le Treport in June, remained there until February 3, 1919. In the period, June 13, 1917–December 31, 1918, 47,811 patients were admitted to the hospital, and 3,736 operations were performed. Teams were sent to Casualty Clearing Stations, and their work is also recorded in the book.

An excellent picture is given of the routine and amusements incidental to life in such a hospital. Due space is given to the history of the nursing staff; in short, the book is a well-balanced, interesting record of one phase of the war. It is illustrated by numerous photographs.

The Eighteenth Amendment and the Part Played by Organized Medicine. By CHARLES TABER STOUT. New York: Mitchell Kennerley. 216 pages.

To the medical man concerned with the ins and outs of prohibition, as most of us are, the title of this book promises a certain amount of instructive reading. One does not have to read far, however, to perceive that the writer is actuated by an intense personal animosity toward both of the subjects mentioned in the title. Although Mr. Stout is heartily opposed to prohibition, his dislike for it is as nothing compared with his venomous hatred of "organized medicine," as he calls the American Medical Association. Apparently carried completely away by his emotions, he makes numerous absurd statements, so palpably false that they are ridiculous. His arguments in favor of the consumption of alcohol are too futile to recount. Nature has made alcohol essential to the well-being of the human system, he says, and he reiterates this belief in the statement that alcohol is necessary, both as food and medicine, to sustain human life.

His attack upon prohibition is mild compared to his drive against the A. M. A. He begins with the premise that the lack of pecuni-

*See BOSTON MEDICAL AND SURGICAL JOURNAL, Vol. 185, page 61. "Spinal Accessory Paralysis," by the same authors.

any reward (he favors the idea that a medical man should patent his discoveries) has kept the really intelligent men from going into medicine. In another breath he accuses the leaders of the A. M. A. of plotting a campaign so farsighted, crafty, and Machiavellian that it leaves us speechless with admiration. By joining forces with the Anti-Saloon League, the Standard Oil Company, and the medical departments of the Life Insurance Companies, the A. M. A., says Mr. Stout, has secured control of alcohol for the benefit of the medical profession, and will later get control, not only of drugs, but of food! He hints, darkly, of some great discovery which will eradicate disease, but which the medical profession has suppressed lest the source of their income should be abrogated. These accusations are directed, not against the general practitioner, but against the leaders of organized medicine who exercise such "crushing disciplinary powers" over him, that he has no independence of thought or of action. A more ludicrous arraignment could hardly be imagined.

A review of *The Eighteenth Amendment*, in the New York edition of *The American Issue* (the organ of the Anti-Saloon League), appears to explain the reason for Mr. Stout's animus.

Charles Taber Stout is secretary and treasurer of the Delson Chemical Co., of Brooklyn. This company markets two proprietary remedies—"Creofos" and "Delereo." In 1917, the Council on Pharmacy and Chemistry of the A. M. A. reported that the therapeutic claims made in behalf of these remedies were "unsubstantiated and grossly exaggerated." If the aforementioned Creofos and Delereo were conceived, compounded and marketed under the guidance of minds as ignorant of chemistry, as faulty in logic, as utterly blind to truth as that of the writer of *The Eighteenth Amendment*, it is no wonder they were refused admission to *New and Non-Official Remedies*.

Domiciliary Treatment of Tuberculosis. By F. RUFENACHT WALTERS, M.D., B.S., M.R.C.P., Lond., F.R.C.S., Eng. New York: William Wood and Company.

In this small volume, Dr. Walters has endeavored to cover the home treatment of tuberculosis. It has many good points but also there are various others that are not so good. He is apt to quote from various authorities on both sides of a disputed point, which is all very well as far as it goes. In too many instances, however, he does not give his own opinion, and leaves the reader to decide for himself.

In speaking of trauma and tuberculosis, he makes the statement that cases of tuberculosis following gassing, "have been fairly common in the Great War." From an extensive experience with this subject, I am strongly of the

opinion that tuberculosis following gassing is a comparatively rare phenomenon.

He states that consumption is very common among operatives in cotton mills, and gives one to infer that the reason for this is because "The interference with the cooling functions of the skin throws a great strain on the heart, just as happens in heat-stroke." In discussing the present symptoms of tuberculosis, he speaks of a persistent anemia which is probably due to a "wasting of the blood." He likewise speaks of "colliquative" sweats. I am in dense ignorance as to what particular kind of a sweat this is. He likewise states that the albumin sputum test is "useful in distinguishing bronchitis from tuberculosis or pneumonia," and that tubercle bacilli "will sometimes be found in the blood," and that "this is more common in afebrile cases." These statements will not be accepted in this country.

He believes in tuberculin in diagnosis as well as in treatment of pulmonary tuberculosis. In discussing the diagnosis of tuberculosis in children, he dismisses this with a few words that the "physical signs are mainly those of enlarged intrathoracic glands," and likewise, that "Radioecopy is also very useful." He takes up in a very cursory fashion medical indications for home treatment as opposed to treatment away from home. He briefly discusses climate, sea voyages, etc. He gives numerous interesting and practical suggestions in regard to home treatment but leaves out many of the most important details. His chapter on "Precautions Against Infection" is very good although too brief. On the other hand, he gives much more space than is necessary to the use of antipyretics in reducing fever. He goes into considerable detail in the question of diet. In his chapter entitled "Specific Remedies," he again takes up the case for tuberculin to which he devotes more than twenty pages. With one or two exceptions in this country, the feeling is that tuberculin, as far as the treatment of tuberculosis is concerned, might well be omitted. He likewise devotes a fairly long chapter to the value of creosote and other drugs in the treatment of this disease. This chapter, also, might well be shortened, with benefit to the book. On the other hand, what he says in regard to exercise and graduated exercise is excellent.

On the whole, this book cannot be highly recommended. It is neither a short, concise summary of existing opinion nor a textbook going into the details of the various subjects which he takes up.

MOLIÈRE'S TERCENTENARY.

THE Academy of Medicine of Paris has decided to keep the tercentenary of Molière, who is spoken of as the "sworn enemy of charlatans."

The Massachusetts Medical Society

STATED MEETING OF THE COUNCIL,
February 1, 1922.

A STATED meeting of the Council was held in John Ware Hall, Boston Medical Library, February 1, 1922, at 12 o'clock, noon. The President, Dr. John W. Bartol, was in the chair, and the following 102 Councilors present:

- BERKSHIRE,
Henry Colt.
A. P. Merrill.

BRISTOL NORTH,
Sumner Coolidge.

BRISTOL SOUTH,
W. A. Dolan.

ESSEX NORTH,
F. W. Snow.
R. V. Baketel.
J. F. Burnham.
T. R. Healy.
F. B. Pierce.
R. L. Toppan.

ESSEX SOUTH,
S. P. F. Cook,
W. T. Hopkins.
J. F. Jordan.
E. S. O'Keefe.
W. G. Phippen.
R. E. Stone.

FRANKLIN,
H. G. Stetson.

HAMPDEN,
E. A. Knowlton.

MIDDLESEX EAST,
L. M. Crosby.
F. T. Woodbury.

MIDDLESEX NORTH,
W. B. Jackson.
J. A. Mehan.
M. A. Tighe.

MIDDLESEX SOUTH,
E. H. Bigelow.
E. W. Barron.
Richard Collins.
F. G. Curtis.
C. A. Dennett.
W. E. Fernald.
F. J. Goodridge.
C. E. Hills.
F. R. Jonett.
C. E. Mongan.
C. F. Painter.
W. D. Ruston.
F. G. Smith.
E. H. Stevens.
A. K. Stone.
F. R. Stubbs.
W. S. Whittemore.

NORFOLK,
E. H. Baxter.
D. N. Blakely.
E. J. Brearton.
E. H. Brigham.
A. N. Broughton.
W. L. Burrage.
- NORFOLK (cont'd).
F. C. Jillson.
G. W. Kaan.
W. B. Keeler.
Bradford Kent.
M. V. Pierce.
Victor Safford.
G. H. Scott.
Augusta Williams.

NORFOLK SOUTH,
C. S. Adams.
O. H. Howe.
G. H. Ryder.

PLYMOUTH,
R. B. Rand.
W. C. Keith.
Gilman Osgood.
F. G. Wheatley.

SUFFOLK,
F. B. Lund.
S. H. Ayer.
J. W. Bartol.
Robert Bonney.
V. Y. Bowditch.
E. G. Brackett.
F. I. Cotton.
L. J. Cummins.
Lincoln Davis.
Channing Frothingham.
J. E. Goldthwait.
W. C. Howe.
J. C. Hubbard.
E. A. Locke.
F. T. Lord.
Donald Macomber.
J. J. Minot.
W. H. Robey, Jr.
Stephen Rushmore.
D. D. Scannell.
Myles Standish.
J. S. Stone.
Louisa P. Tingley.
F. H. Williams.

WORCESTER,
J. J. Goodwin.
F. H. Baker.
W. P. Bowers.
W. J. Delahanty.
G. A. Dix.
M. F. Fallon.
Homer Gage.
R. W. Greene.
David Harrower.
E. L. Hunt.
A. G. Hurd.
L. C. Miller.
F. H. Washburn.
S. B. Woodward.

WORCESTER NORTH,
W. E. Currier.
J. G. Henry.
A. H. Quessy.

The record of the last meeting was read in abstract by the Secretary and was accepted. Dr. Donald Macomber, Chairman of the Committee of Arrangements, presented the accompanying program for the annual meeting and it was adopted by vote, without discussion:

REPORT OF COMMITTEE OF ARRANGEMENTS SUBMITTED
TO COUNCIL FEBRUARY 1, 1922.
TUESDAY, JUNE 13.

- 8.30-9.45 Clinics at the various hospitals.

10-12 Section meetings, surgery and medicine.

12-1.30 Demonstrations of special work done at hospitals, including Forsyth Dental Infirmary and School for the Feeble-Minded.

12-1.30 Council meeting.

1.30-2.30 Cotting lunch for Councilors, and caterer's lunch for fellows—to be paid for by fellows attending.

2.30-4.30 Section meetings, hospital administration, tuberculosis and pediatrics.

8 P.M. Shattuck lecture—to be followed by a collation.
- HARVARD MEDICAL SCHOOL
- BOSTON MEDICAL LIBRARY

WEDNESDAY, JUNE 14.

- 9.30 Annual meeting.

10-12 Papers and demonstrations.

12-1 Oration.

1-2 Caterer's lunch.

2-5 Demonstrations and special clinics.

7 P.M. Annual dinner.
- HARVARD MEDICAL SCHOOL
- COPLEY PLAZA HOTEL

ESTIMATE OF EXPENSES OF ANNUAL MEETING SUBMITTED TO COMMITTEE ON MEMBERSHIP AND FINANCE.

Dinner for 700 at Copley Plaza, for which the Society is to pay at the rate of \$2.00 a plate.		\$1400.00
Music at dinner.....		100.00
Cigars and cigarettes.....		200.00
Collation after Shattuck lecture, to be held at Medical Library.....		200.00
Printing programs, postage, printing signs, etc.		300.00
To cover possible deficit at Copley Plaza, or for lunches at Medical School.....		300.00
Making grand total.....		\$2500.00

DONALD MACOMBER, Chairman.

Dr. S. B. Woodward, Chairman of the Committee on Membership and Finance, read this report of his committee, on membership. It was accepted and its recommendations adopted:

REPORT OF THE COMMITTEE ON MEMBERSHIP AND FINANCE, AS TO MEMBERSHIP.

The Committee on Membership and Finance makes the following recommendations as to membership:

1. That the following named Fellows be allowed to retire under the provisions of Chapter I, Section 5, of the by-laws:
- Gardner Weld Allen, 419 Boylston Street, Boston.

William Thomas Councilman, 240 Longwood Avenue, Boston.

Douglas Graham, Hotel Brunswick, Boston.

James Joseph McCarty, Minneapolis, Minnesota.
James Cogswell Du Maresque Pigeon, 27 Elm Hill Avenue, Roxbury.
Walter Anson Smith, Box 461, Shelburne Falls.

2. That the following named Fellows be allowed to resign, under the provisions of Chapter I, Section 7, of the by-laws:

Anna Belle Durrie, Mt. Vernon, Ohio.
Henry Bird Pitts, Framingham.
Frank Fremont-Smith, Winter Park, Florida.
Harold Merle Goodwin, Bangor, Maine.
Kamel Khoury, 14 Lake Avenue, Worcester, with remission of dues for 1921.
Harold Myers Marvin, New Haven Hospital, New Haven, Connecticut.
Everett Albert Merrill, 23 Central Avenue, Lynn, with remission of dues for 1921.
Robert Elmer Merritt, Los Angeles, California, with remission of dues for 1920 and 1921.
Frank Leander Morse, 78 Highland Avenue, Somerville.
Frank Thorwald Oberg, Hutchinson, Kansas.
Karl Tristram Phillips, Putnam, Connecticut.
Lionel Alexander Burnet Street, Los Angeles, Calif.
Jonas Hobart Vaughan, Orlando, Florida.
Edward Sawtelle Welles, Saranac Lake, New York.
Frederica Winestine, Helena, Montana.

3. That the following named Fellows be allowed to change their district membership without change of legal residence, under the provisions of Chapter III, Section 3, of the by-laws:

Charles George Barrett, from Worcester to Hampshire.
William Pearce Coues, from Norfolk to Suffolk.
Harold Maurice Frost, from Norfolk to Suffolk.
Lazarus Golden, from Norfolk to Suffolk.
Arthur Ellis Pattrell, from Worcester to Suffolk.
Samuel Maurice Pearl, from Norfolk to Suffolk.
Edward Bernard Sheehan, from Norfolk to Suffolk.
Robert Henry Vose, from Norfolk to Suffolk.

4. That the following named Fellow be deprived of the privileges of membership, under the provisions of Chapter I, Section 8, of the by-laws:

John Joseph Stack, 407 Marlborough Street, Boston.

Respectfully submitted,

SAMUEL B. WOODWARD,

Chairman, Committee on Membership and Finance.

The Secretary read the reports of the committees appointed to consider the petitions of H. L. Flynn and H. L. Wallace to be restored to the privileges of fellowship and each was accepted and its recommendations adopted, namely, that these two petitioners be restored under the usual conditions. The petition of W. H. Blanchard to be restored, being read by the Secretary, the President nominated and the Council appointed the following fellows to consider it: Stephen Rushmore, W. C. Howe, R. H. Miller. In the same manner a petition of T. J. Brennan was assigned to P. E. Truesdale, R. W. French and C. J. Leary.

The President called attention to the importance of the Society keeping in close touch with the American Medical Association; he spoke of having recently attended, with other members of the Committee on State and National Legislation, a regional conference on legislative matters in New York City, arranged by the Council on Health and Public Instruction of the American Medical Association, and

he was impressed with the importance of having the Society represented at the coming conference at Chicago by its President, therefore he nominated and the Council elected John W. Bartol as a delegate to the Conference on Health and Public Instruction at Chicago in March, 1922. In a similar fashion, Charles F. Painter, Chairman of the Committee on Medical Education and Medical Diplomas, was elected a delegate to the Conference on Medical Education and Hospitals of the American Medical Association at Chicago in March, 1922.

These delegates to the House of Delegates of the American Medical Association, for two years from June 1, 1922, were appointed:

PRINCIPALS.

H. G. Stetson, Greenfield.
C. E. Mongan, Somerville.
J. F. Burnham, Lawrence.

ALTERNATES.

L. A. Jones, Swampscott.
Gilman Osgood, Rockland.
A. R. Crandell, Taunton.

The Chair nominated and the Council elected the following delegates to the annual meetings of the State medical societies of New England:

Maine: A. P. Lowell, Fitchburg; Richard Collins, Waltham.

New Hampshire: W. E. Currier, Leominster; T. N. Stone, Haverhill.

Connecticut: A. P. Merrill, Pittsfield; G. L. Chase, Clinton.

Rhode Island: C. A. Pratt, New Bedford; G. A. Moore, Brockton.

The Treasurer read the reports of the auditing committee, of the certified public accountant and the treasurer's report, while there were passed about copies of the reconciliation between the profit and loss and budget for the past year, prepared by the accountant. (See Appendix No. 1.)

On motion duly made and seconded it was voted to accept the reports and have them printed.

Dr. Woodward read the report of the Committee on Membership and Finance as to finance as follows:

REPORT OF THE COMMITTEE ON MEMBERSHIP AND FINANCE, AS TO FINANCE.

The Committee on Membership and Finance, before presenting its budget for the current year, wish to call attention to the fact that for 37 years Dr. Edwin H. Brigham has faithfully and efficiently served the Society as its Librarian.

In recognition of this service, and feeling that the time has come when he should, in some measure at least, be relieved of the responsibilities connected with that office, they recommend that the office of Librarian Emeritus be established, that Dr. Brigham be made Librarian Emeritus, that his duties be such as he may elect to perform, other duties to be attended to by the Secretary, and that the salary of the Librarian Emeritus be the same as that at present paid to the Librarian.

They recommend to the Council the acceptance of the following budget for the current year: (see Appendix No. 2.)

The Report of the Committee on the Samuel Fuller Memorial was referred to your Committee by the Council at its last meeting.

While approving, in general, the project, we do not recommend an appropriation of money from the treas-

ury to provide a memorial for the Pilgrim physician, believing that the scheme should be financed in some other way.

Although perhaps outside of our province, we suggest to the Council that a Committee of physicians might be appointed by it, authorized to receive such sums as might be given them and authorized also to state that the project meets with the approval of the Massachusetts Medical Society.

The question of the payment or non-payment of the travelling expenses of members of standing committees was considered at length in a report made to the Council at a previous meeting. Had our efficient Secretary unearthed a vote of the Council passed in 1897 before, instead of after the presentation of that report, your committee might have been spared some profitless discussion and you the listening to our somewhat verbose report; for the Council, on February 3, 1897, voted that: "The travelling and incidental expenses of the Society's general officers and of the members of the several standing committees, in the discharge of their duties, be paid from the Society's treasury." This vote seems never to have been rescinded.

Respectfully submitted,

SAMUEL B. WOODWARD,

Chairman, Committee on Membership and Finance.

It was moved and seconded that that portion of the report which relates to the Librarian be accepted, and its recommendations adopted, and it was so voted. The portion relating to the proposed memorial to Dr. Samuel Fuller was discussed by Dr. Myles Standish, Dr. Woodward and Dr. A. P. Merrill, and on motion by Dr. J. S. Stone it was *Voted*, That further action as regards a memorial to Dr. Samuel Fuller be left to the original committee having the matter in charge, in conference with the President of the Society.

The recommendations of the Committee on Membership and Finance as to finance, including the budget, were adopted by vote. Dr. A. N. Broughton said that there were several bills before the legislature on the subject of Workmen's Compensation and he would like to have an appropriation of \$500 for the committee of the Society on that subject, of which he was chairman. On motion the request was referred to the Committee on Membership and Finance, under the terms of the by-laws, Chapter IV, Section 8.

Dr. Woodward read a motion as to the investment of the Permanent Fund and the following vote was passed:

Voted, That the Treasurer, Arthur K. Stone, be and hereby is authorized to withdraw deposit of eleven thousand two hundred fifty-three and 30/100 dollars (\$11,253.30) with the Massachusetts Hospital Life Insurance Company, represented by its policy No. 97, and he is authorized to receipt for said amount on behalf of the Massachusetts Medical Society.

Dr. Frothingham read a report of the committee appointed last May to consider the medical cults. (See Appendix No. 3.) At the end he suggested that the study inaugurated by his committee should be continued by a

comparative study so that necessary data might be gathered that would be of the greatest importance to the medical profession. On motion by Dr. A. P. Merrill it was *Voted*, To adopt the report; that the committee be continued and requested to plan a definite course of investigation and to report further to the Council.

Dr. Homer Gage read the report of the committee appointed May 31, 1921 "to investigate health problems in relation to the care of the sick in rural communities." (See Appendix No. 4.) The report was accepted and its recommendations adopted. Dr. E. H. Bigelow, chairman of the standing committee on Public Health, offered this motion: "*Moved*, That the Council authorize the expenditure of a sum of money not to exceed twenty-five hundred dollars (\$2,500) for the investigation of health problems in relation to the care of the sick in rural communities in Massachusetts, to see if conditions can be improved; such money to be expended by the Committee on Public Health, should investigation by said committee demonstrate the need of such work by the Massachusetts Medical Society; all expenditure for this work to be subject to the approval of the president of the Society and the chairman of the Committee on Membership and Finance. The motion was advocated by Dr. Bigelow and seconded by Dr. A. H. Quessy, who drew a distinction between the functions of a state department of health which cares for the conditions governing the health of the community, such as water supply and the prevention of epidemics, and the care of the health of the individual; he thought it the function of the Massachusetts Medical Society to assume the rôle of individual health service—to see that service is given those who need it. Dr. F. J. Cotton and Dr. F. B. Lund thought that the Committee on Public Health should submit a definite plan of proposed expenditure. Dr. W. A. Dolan opposed the motion on the ground that the action would usurp the functions of the State. Dr. Bigelow in response to questions stated that it would lie with the Council whether an appropriation should be made yearly; that it was proposed to employ an able field agent to work under the auspices of his committee. Dr. Merrill advocated publishing in the *Boston Medical and Surgical Journal*, which he thought was more in favor with the physicians of the State and was more widely read than formerly, a definite plan by the Committee on Public Health. *Voted*, That the entire matter be referred to the Committee on Membership and Finance for a report at the next meeting of the Council, with the understanding that the Committee on Public Health will present to said Committee on Membership and Finance, at an early date, a definite, detailed plan for the expenditure of the appropriation asked for.

The Secretary read a letter from Frederic W. Cook, Secretary of the Commonwealth of Massachusetts, concerning the registration of births and deaths, a function of the State which is in charge of the Secretary's office. (See Appendix No. 5.) On motion by Dr. F. G. Curtis this was referred to the Committee on State and National Legislation, after it had been discussed by Dr. J. A. Mehan and by Dr. Curtis.

The President read the following letter from the Berkshire District Medical Society inviting the Society to hold its annual meeting in Pittsfield, in 1923:

PITTSFIELD,

December 27, 1921.

Dr. John W. Bartol,
Boston, Mass.

Dear Dr. Bartol:

Pursuant to a vote which was passed at the last meeting of the Berkshire District Medical Society, the Massachusetts Medical Society is hereby invited to hold its annual meeting in Pittsfield in June, 1923. Although this Society is unable to furnish extensive clinical facilities, we could accommodate the members in hotels and furnish halls for the meetings and depend upon outdoor activity to take the place of the clinics. We should be very glad, however, to hold such clinics as we are able to.

Should the Society accept our invitation we shall be glad to do all in our power to help in making the arrangements and in making the meeting a success.

Very truly yours,

A. P. MERRILL, *Secretary.*

He called on Dr. Merrill who explained how much pleasure it would give the Berkshire district to entertain the parent society; that it would be honored by a meeting in their chief city; that the members planned to have a combination of meetings in the halls and out-door sports; that a suitable hotel was available for the annual dinner. He hoped the Council would vote to meet in Berkshire. Dr. J. S. Stone moved that the invitation be accepted. It was discussed by the Chair, by Dr. Stone, Dr. Lund and Dr. Dolan, and it was *Voted*, That the annual meeting of the Society be held in Pittsfield in 1923; that the matter be referred to the Committee of Arrangements, and that the unanimous and warm thanks of the Council be returned to the Berkshire District Medical Society for their cordial invitation to meet in Pittsfield.

The Secretary called attention to the custom of the Society in the past, whenever it held an annual meeting outside of Boston, to appoint a Committee of Arrangements from the city in which the meeting was to be held, as it was manifestly impossible for a committee of Bos-

ton fellows to arrange a meeting in a distant city. Dr. J. S. Stone pointed out that the Committee of Arrangements is customarily appointed by the Council at its annual meeting and that in June a committee can be appointed, on nomination of Berkshire, to arrange the meeting of 1923.

The Chair spoke of the importance of the fellows of the Society making a good showing at the hearings at the State House, then in progress. He referred to the vaccination bills and to the bill for the registration of midwives and called on Dr. J. S. Stone, Secretary of the Committee on State and National Legislation, to say something as to the situation. Dr. Stone said that the members of the legislature are very ready to hear the voice of the medical profession, even if the voice is not harmonious—silence accomplishes nothing; he thought that the action of the speaker of the House in visiting the meetings of the district societies in different parts of the State and in contributing articles on medical topics to the official organ of the Society, showed that he is both ready to listen sympathetically and to advance the needs of the profession when they have been made clear by those who are willing to take the time and to devote themselves to the cause. He considered the bill to establish a board of registration in chiropractic a direct assault on the Board of Registration in Medicine—a dangerous bill; town councils should oppose the bill making liable for damages towns where vaccinations are done by the boards of health; outsiders, that is, laymen, must be interested in medical problems in order to obtain results in the halls of legislation. Civic bodies, such as chambers of commerce, can and do accomplish much. They should be approached by the physicians and instructed of the needs of the medical profession.

On motion by Dr. J. Forrest Burnham it was *Voted*, That the Council of this Society instruct the Committee on Medical Education and Medical Diplomas to revise its list of Schools and Medical Colleges of the United States and Canada recognized for the purpose set forth in the By-Laws, Chapter 1, Section 1 (*i.e.* schools, diplomas from which may be received by the censors from candidates for fellowship).

Dr. Lund stated that a special train would carry those who wished to attend the annual session of the American Medical Association at St. Louis in May, leaving the Saturday before the meeting and coming back the Saturday after. He would like to hear soon from those who were planning to attend the session, to the end that they might make reservations on that train.

Adjourned at 2.15 P.M.

WALTER L. BURRAGE, *Secretary.*

APPENDIX TO PROCEEDINGS OF THE COUNCIL.

APPENDIX NO. 1.

REPORT OF AUDITING COMMITTEE.

To the President and Councilors:

We have examined the securities of the Society in the custody of the Treasurer in the vaults of the Bay State Branch of the Old Colony Trust Company; we find them in accordance with the Treasurer's schedule of investments.

The report of audit of the Treasurer's accounts by

Horace C. Hartshorn, Certified Public Accountant, for the year ending Dec. 31, 1921, we have also examined and accepted, and submit it herewith as a part of our report.

CHARLES M. GREEN,
RICHARD G. WADSWORTH,

Auditors.

REPORT OF CERTIFIED PUBLIC ACCOUNTANT.

Boston, January 26, 1922.

DR. CHARLES M. GREEN, DR. RICHARD G. WADSWORTH,
Auditing Committee, Massachusetts Medical Society,
Boston, Mass.

Gentlemen:

In accordance with your instructions I have audited the books and accounts of your treasurer, Dr. Arthur K. Stone, for the year ending December 31, 1921, and enclose herewith,

Schedule A Statement showing the Assets and Liabilities of the Massachusetts Medical Society, December 31, 1921.

Schedule B Statement showing the Current Account of the Massachusetts Medical Society for the year ending December 31, 1921.

The cash on deposit with the banks has been reconciled with the bank statement and found to be correct. Disbursements have been verified, postings to the ledger checked, and trial balance found to be in balance. I have not examined the securities in the safe deposit vaults of the Society.

Respectfully submitted,
HORACE C. HARTSHORN,
Certified Public Accountant.

TREASURER'S REPORT.

SHOWING THE ASSETS AND LIABILITIES OF THE
MASSACHUSETTS MEDICAL SOCIETY
DECEMBER 31, 1921.

Schedule A.

ASSETS.			LIABILITIES.		
<i>Cash:</i>			<i>Endowment Funds:</i>		
New England Trust Co.....	\$5,487.99		Shattuck Fund (G. C. Shattuck, 1854, Balance, 1866)	\$9,166.87	
Old Colony Trust Co.....	3,688.16	\$9,176.15	Phillips Fund (Jonathan Phillips, 1860)	10,000.00	
<i>Investments:</i>			Cotting Fund (B. E. Cotting, \$1,000.00, 1876, 1881, 1887)	3,000.00	\$22,166.87
Shattuck Fund			<i>Surplus:</i>		
Annuity Policy Mass. Hospital Life Ins. Co.....	9,166.87		Balance, January 1, 1921.	\$29,426.10	
Phillips Fund			Year ending December 31, 1921, <i>Schedule B</i>	3,121.06	32,547.16
Massachusetts 3½% Gold Bonds	10,000.00				
Cotting Fund					
Deposit in Institution for Savings in Roxbury and Its Vicinity	1,000.00				
Deposit in Provident Institution for Savings in the Town of Boston.....	1,000.00				
Deposit in Suffolk Savings Bank for Seamen and Others, Boston	1,000.00				
Permanent Fund					
Annuity Policy of Mass. Hospital Life Ins. Co..	11,253.30				
Massachusetts 3½% Gold Bonds	6,000.00				
Deposit in Franklin Savings Bank of the City of Boston	1,074.48				
Liberty Bonds					
Fourth Issue 4¼% due Oct. 15, 1938—Par value \$5,200.00	5,043.23	45,537.88			
Total Assets		\$54,714.03	Total		\$54,714.03

STATEMENT SHOWING THE CURRENT ACCOUNT OF THE MASSACHUSETTS MEDICAL SOCIETY
FOR THE YEAR ENDED DECEMBER 31, 1921.

Schedule B:

CREDIT.

Assessments paid to District Treasurers:		
Parnstable	\$266.00	
Berkshire	786.00	
Bristol North	618.00	
Bristol South	1,374.00	
Essex North	1,498.00	
Essex South	1,534.00	
Franklin	350.00	
Hampden	2,113.00	
Hampshire	512.00	
Middlesex East	750.00	
Middlesex North	973.00	
Middlesex South	4,788.00	
Norfolk	4,590.00	
Norfolk South	532.00	
Plymouth	978.00	
Suffolk	7,404.00	
Worcester	3,048.00	
Worcester North	784.00	\$32,898.00
Assessments paid to Treasurer.....	\$2,185.50	
Less—Return of Overpaid Assessments.....	15.00	2,170.50
Income Shattuck Fund.....		435.43
Income Phillips Fund		
Mass. 3½% Gold Bonds.....		350.00
Income Cotting Fund		
Interest—Institution for Savings in Roxbury and Its Vicinity....	45.00	
Interest—The Provident Institution for Savings.....	45.00	
Interest—Suffolk Savings Bank.....	45.00	135.00
Income Permanent Fund		
Annuity Policy Mass. Hospital Life Ins. Co.....	534.53	
Massachusetts 3½% Bonds.....	210.00	
Interest—Franklin Savings Bank.....	48.32	
Liberty Bonds	221.00	1,013.85
Income from Deposits in Banks		
New England Trust Co.....	383.11	
Old Colony Trust Co.....	102.05	485.16
Total		\$37,487.94

DEBIT.

General Expense		
President's Expense	\$183.77	
Secretary's Expense	498.29	
Librarian's Expense	119.85	
Treasurer's Expense	233.61	
District Treasurers' Expense.....	1,875.92	
Censors' Expense	657.13	
Rent	750.00	
Salaries	2,000.00	
Delegates' Expense	139.81	\$6,458.38
Boston Medical and Surgical Journal		
Expense	16,500.00	
Shattuck Lecture	200.00	
Committee Expense		
Of Arrangements	1,046.25	
Publications and Scientific Papers.....	5.00	
Ethics and Discipline.....	5.60	
Medical Education and Medical Diplomas.....	154.63	
State and National Legislation.....	192.58	
Public Health	684.60	
Health Insurance	15.35	2,104.01
Annual Dividends to District Societies.....	6,999.92	
Defense of Malpractice Suits.....	1,708.20	
Cotting Lunches	396.37	\$34,366.88
Balance to Surplus.....		\$3,121.06

Respectfully submitted,

ARTHUR K. STONE, *Treasurer.*

RECONCILIATION BETWEEN THE PROFIT AND LOSS AND BUDGET FOR THE YEAR ENDED
DECEMBER 31, 1921.

Revenue:	PROFIT AND LOSS ACCOUNT	BUDGET ESTIMATE	DIFFERENCE Under Over Estimated Estimated	
Assessments	\$35,068.50			
Investments	2,419.44			
Total Society Revenue.....	\$37,487.94	\$32,000.00	\$5,487.94	
Increase in Revenue over Budget.....		5,487.94		
Total as per Auditor's Report.....	\$37,487.94	\$37,487.94		
Expenses:				
Salaries of Officers:				
Secretary	\$1,100.00	\$1,100.00		
Treasurer	500.00	500.00		
Librarian	400.00	400.00		
Expenses of Officers.				
President	183.77	200.00		16.23
Secretary	498.29	800.00		301.71
Treasurer	233.61	150.00	\$83.61	
Librarian	119.85	50.00	69.85	
District Treasurers	1,875.92	1,500.00	375.92	
Censors	657.13	500.00	157.13	
Supervisors		30.00		30.00
Delegates to American Medical Assn.	139.81		139.81	
Rent	750.00	750.00		
Journal	16,500.00	15,000.00	1,500.00	
Defense of Malpractice Suits.....	1,708.20	600.00		
Contingent Fund		715.00	393.20	
Shattuck Lecture	200.00	200.00		
Cotting Lunches	396.37	400.00		3.63
Standing Committees:				
Of Arrangements	1,046.25	500.00	546.25	
Publications and Scientific Papers.....	5.00		5.00	
Ethics and Discipline.....	5.60	25.00		19.40
Membership and Finance.....		5.00		5.00
Medical Education and Medical Diplomas	154.63	225.00		70.37
State and National Legislation.....	192.58	500.00		307.42
Public Health	684.60	700.00		15.40
Scientific Papers		100.00		100.00
Industrial Insurance	15.35	50.00		34.65
Dividends to Societies.....	6,999.92	7,000.00		.08
Total Expense as per Auditor's Report....	\$34,366.88		\$3,270.77	\$903.89
Total Budget		\$32,000.000		
Expense under-estimated		2,366.88		2,366.88
	\$34,366.88	\$34,366.88	\$3,270.77	\$3,270.77
Revenue under-estimated	\$5,487.94			
Expenses under-estimated	2,366.88			
Total Gain over Budget (carried to Surplus)	\$3,121.06			

APPENDIX NO. 2.

BUDGET FOR 1922.

Income as estimated by the Treasurer.....	\$35,000
Appropriations for expenditures:	
Salaries of officers:	
Secretary	\$1,500
Treasurer	500
Librarian Emeritus	400
	\$2,400
Expenses of officers:	
President	200
Secretary	900
Treasurer	250
District Treasurers....	2,000
Censors	700
Delegates	500
	4,550
Rent	750
Boston Medical and Surgi- cal Journal	16,500
Malpractice Defense.....	800
Shattuck Lecture	200

Cotting Lunches	400
Standing Committees:	
Membership and Finance	25
Ethics and Discipline..	25
Medical Education and Medical Diplomas....	230
State and National Legislation	500
Public Health	700
Scientific Papers	200
	1,680
Special Committees:	
Health insurance	25
Maternity Aid	350
Of Arrangements for Annual Meeting	2,500
	30,155
	\$4,845
Dividend to District Societies.....	4,000
Contingent Fund	\$845

APPENDIX NO. 3.

REPORT OF THE COMMITTEE TO INVESTIGATE THE MEDICAL CULTS.

YOUR committee which was appointed in June, 1921, to study osteopathy and chiropractic, submits the following report in which the subjects of osteopathy and chiropractic will be taken up separately. As the committee found that there was a general lack of appreciation among the members of the medical profession in regard to just what these medical cults signified, some space will be devoted to a description of them.

OSTEOPATHY.

Osteopathy was founded by a doctor of medicine. It depends upon a theory. It is not clear to the committee whether the theory was evolved before some results were obtained from treatment or after. The theory as advanced by Dr. Still, the founder, consists in the belief that the human body contains all of the elements necessary for health, and if the circulation within the body is normal, these elements will maintain health. The impairment of circulation, so that these elements contained in the body cannot be properly supplied to all parts, is the cause of disease. This impairment of the circulation is produced by the action of the vasomotor nerves. These in turn are affected by direct pressure from bones, muscles or ligaments in the region of the spine or by reflex irritation from disturbance in visceral organs or other parts of the body.

In the later books on osteopathy the term "inhibition" appears. Inhibition apparently is the relief of pain and spasm by the application of steady pressure. It is not clear whether this was included in the original theory or added afterwards. According to Still's original theory there is no need for the vast amount of medical knowledge which has been accumulated for centuries, because it is only necessary to discover the lesion which is causing the disturbance in the circulation, correct that and health will result.

Your committee was unable to find any experimental or other scientific evidence in support of this theory, although in recent years an institute for research has been established in California for osteopathic problems. Your committee naturally considers it absurd to throw over all the accumulation of facts that has been produced by medical science for a theory which is unsupported by experimental work or other convincing facts. Your committee further feels that the osteopaths themselves, at the present time, do not feel that this theory should replace all medical knowledge. For it is quite striking to note in the osteopathic literature that the more recent the book, the more use is made of general medical knowledge so far as diagnosis is concerned and the employment of generally recognized therapeutic agents other than drugs. Also it is evident from conversation with members of the osteopathic profession that the rigid interpretation of the old theory is being, in part at least, abandoned.

The question arises therefore, what is osteopathy today? Osteopathy today is really a therapeutic agent which is used for the treatment of any and all pathological conditions. That this contention as to the real nature of osteopathy today is correct seems justifiable from the fact that the osteopathic books speak of osteopathy as a therapeutic agent which is contrasted chiefly with one of the therapeutic agents used in general medicine, namely, drugs. Furthermore, in the State of Massachusetts the General Court has legislated that osteopaths and all others practicing the healing art must fulfil the same requirements in

regard to general medical knowledge as regular physicians who desire a license to practice medicine, and having so done they may use any therapeutic agent they wish. Your committee therefore feels justified in looking upon osteopathy as a therapeutic agent and has endeavored to find out the value of this therapeutic agent.

The osteopathic treatment consists in the relief of the so-called osteopathic lesion which is claimed to be present in all diseases. It is important, therefore, to understand just what is meant by the so-called osteopathic lesion. Unfortunately, one forms the opinion from reading that the osteopaths vary somewhat in their conception of the osteopathic lesion, but in general they agree that the lesion consists in certain abnormalities situated chiefly in the muscles, ligaments or joints along the spine. These abnormalities consist of a slight displacement of articular surfaces which may or may not be demonstrable by inspection, palpation or x-ray, a localized tenderness, and a spasm of muscles. They claim that this combination of abnormalities or osteopathic lesion should be found at some point along the spine in practically all diseases. The site of the lesion varies with the localization of the disease. Although they claim that there is some specificity of the lesion so far as location is concerned, there is no specificity of the lesion for different diseases in the same organ. In other words, tumor of the kidney, nephritis, tuberculosis of the kidney and pyelonephritis would all present a similar osteopathic lesion along the spine.

Your committee had an opportunity to see a member of that profession look for the osteopathic lesion in various disorders. In some of them he was able to demonstrate a so-called osteopathic lesion, in others he was not. It seems, therefore, to your committee that the presence of this osteopathic lesion in all diseases is not an established fact. The presence or absence of this so-called osteopathic lesion in disease could be definitely settled, it seemed to your committee, by a careful study of cases by a suitable group of doctors in conjunction with those trained in detecting the osteopathic lesion.

Assuming for the moment that an osteopathic lesion may be present in all disease, what is the method of treatment which is the therapeutic agent peculiar to the osteopathic physician? He endeavors by manipulation and with the assistance of inhibition to reduce the lesion, namely, to correct displacement of the bony surfaces, if any exist, and to relax the muscular spasm and remove the point of tenderness. Granting for the moment that an osteopathic lesion is present and that it may be reduced, both of which presumptions are still unproven, there is no satisfactory proof obtainable that in the great mass of self-limited acute infectious, toxic diseases and incurable chronic disorders this treatment affects the course of the disease. So far as your committee can find, no careful comparative studies have been made on the value of osteopathic treatment in addition to other procedures. Before any claim is justified for the value of this treatment a careful study of a large group of cases should be made in which the usual therapeutic procedures are tried on half the patients and the same procedures plus the osteopathic procedures on the other half.

It became obvious, however, to your committee during their studies that in a group of less well defined conditions, such as lame and painful backs from various causes, etc., the osteopathic treatment afforded marked relief. In this group of cases comparative studies again have not been made, but one is forced to the conclusion, from the great weight of evidence of relief in isolated cases, that benefit is frequently derived by these manipulations. In other instances osteopathic manipulations have resulted in harm to the patient. Your committee en-

deavored to figure out what actually happens in these cases in which relief is obtained, for the osteopaths only have a theory as to the cause of the relief and this theory varies among different osteopaths. A regular physician who has made considerable study of this subject feels that the various theories of the osteopaths do not quite account for the results obtained and offers a different one of his own. Your committee has not arrived at a satisfactory conclusion as to the reason for the beneficial results and feels that at present the reasons are not known. It feels that careful study should be conducted by properly trained medical investigators in order to arrive at the truth in regard to these results.

Your committee in conclusion feels, therefore, that the therapeutic agent known as osteopathy has not been proved to be of any value in the diseases of known pathology. It has been shown to be of undoubted benefit in certain conditions of unknown pathology. It is also well known that it can do harm in various conditions, especially when applied without a general medical knowledge. Your committee urges the Society, therefore, to join with other medical research forces in the State in an effort to clear up the points mentioned above which have not been as yet definitely settled in regard to osteopathy, and to find out in what way osteopathy helps in those very few conditions in which it seems to be of value, in order that this therapeutic agent may be used intelligently by the profession at large. For this purpose funds should be appropriated.

CHIROPRACTIC.

Chiropractic apparently was founded by a layman and, like osteopathy, depends upon a theory. This theory consists in the claim that all disease results from pressure upon nerves as they emerge from the spinal canal. This pressure is caused by abnormal position of the vertebrae. The chiropractor does not need the accumulated knowledge in regard to disease because if pressure is relieved from the nerve roots, health will result irrespective of the type of the disease. One of their leaders, Palmer, says in his writings that he does not want a diagnosis.

In support of this theory your committee has been unable to find any experimental or other sound evidence, either in the chiropractic literature or elsewhere. To substitute this unproved theory for the accumulation of medical knowledge is, of course, absurd.

Your committee is not convinced that the leaders in chiropractic are sincere and feels that the whole subject may be one gigantic fraud in which a certain number of sincere individuals have been carried along. The only possible value that your committee can find in chiropractic is that it may offer a new therapeutic agent which will be of value in certain cases, and therefore your committee has endeavored to investigate the method of procedure used by the chiropractors and study their results.

The procedure of the chiropractor is to examine the spine by palpation and x-rays in order to locate the subluxations or other malpositions of the vertebrae. In addition attempt is made to trace the course of nerves over the trunk, head and extremities for tender points. The chiropractor claims that abnormal positions of certain vertebrae with resulting pressure on certain nerves account for the various disorders known to medicine. Their treatment consists in an attempt to reduce by manipulation these subluxations or malpositions of the vertebrae.

Your committee can find from the chiropractic literature or elsewhere no sufficient evidence that this form of treatment is of any value in disease of recognized pathology. Individual reports on the results of chiropractic treatment in this community are so few that your committee could not find any evi-

dence that this type of treatment is of value in those ill-defined disorders of unknown pathology in which osteopathy is at times of benefit. The tremendous growth of the cult throughout the United States is the one reason for wondering whether in certain ill-defined conditions chiropractic treatment may be of comfort, if not of benefit, to the patients. This point, however, is not proved at the present time and it is quite probable that if any benefit is derived from the use of chiropractic treatment it is the result of suggestion rather than the treatment.

Your committee feels, therefore, in regard to chiropractic that at the most it can only be looked upon as a therapeutic agent in the group of physical therapeutic agents. Your committee feels certain that to employ such a therapeutic agent without general medical knowledge is a great danger to the public health. Your committee urges that the Society include in its investigation of the benefits derived from osteopathy the claims of the chiropractors in order to see if it offers a therapeutic agent worthy of consideration by the medical profession.

Among the various books and pamphlets consulted are the following:

OSTEOPATHY.

- Burns, L. J.: Basic Principles of Osteopathy.
- Clark, M. E.: Applied Anatomy.
- McConnell and Teall: Practice of Osteopathy.
- Riggs: Manual of Osteopathic Manipulation and Treatment.
- Still, A. T.: Research Institute, Bulletin No. 1.
- Research Institute, Bulletin No. 2.
- Research Institute, Bulletin No. 4.
- Research Institute, Bulletin No. 5.
- Taskar, D. L.: Principles of Osteopathy.
- Woodall, P. H.: Manual of Osteopathic Gynecology.

CHIROPRACTIC.

- Encyclopedia Americana.
- Firth, J. M.: Chiropractic Symptomatology.
- Loban, J. M.: Technique and Practice of Chiropractic.
- McNamara, R. E.: Chiropractic.
- Palmer, B. J.: Science of Chiropractic: Vols. II, III, and VI.
- Sterns: Methods of Examination.
- Vedder, H. E.: Chiropractic Physiology.

RECOMMENDATIONS.

Your committee appointed to investigate Osteopathy and Chiropractic during its work became convinced that the Society owes a duty to the general public in regard to enlightening the public how to handle the growth of medical cults, and therefore has taken the liberty to present to you the following suggestions with the hope that some action will be taken upon them if you see fit.

Your committee feels that the proper way to handle the cult problem, which will always continue to crop up, is to avoid intolerance against the practitioners of these methods, and to educate the public, and especially the legislators, that these cults are in reality simply therapeutic agents. It should then be made clear that all those using any therapeutic agent in the care of the sick should only do so provided that they possess an adequate general medical knowledge, based upon a uniform examination such as the Massachusetts law calls for at present. The Massachusetts Medical Society should always be active in trying to raise the standards of this examination.

CHANNING FROTHINGHAM, *Chairman*.
 GEORGE C. BADGER.
 JAMES W. SEVER.

APPENDIX NO. 4.

REPORT OF COMMITTEE TO INVESTIGATE HEALTH PROBLEMS IN RELATION TO THE CARE OF THE SICK IN RURAL COMMUNITIES.

The Committee appointed at the meeting of the Council May 31, 1921, "to investigate health problems in relation to the care of the sick in rural communities to see if conditions can be improved," beg leave to report:

The wording of the vote under which this Committee was appointed is perhaps open to more than one interpretation. We may not have taken the one which the proponents of the motion had in mind, but we have assumed that we were not asked to study and report on the health of rural communities. We have interpreted our task to be a report on the means of protecting health and relieving sickness and disability in the country districts of Massachusetts.

The prevention and control of epidemic diseases and the detection and removal of unhealthful surroundings are the functions of the State and local Boards of Health. We have always had and have now an efficient and alert State Department of Health, well managed, quite up to date, and doing an admirable work. We have in rural communities, as a rule, very inefficient local boards, functioning only in the presence of some epidemic or aggravated nuisance; and then only by calling upon the State Department for help. The problem here is one of political organization, and has not changed except for the better for many years. It is doubtful if any practical means could be devised for handling the problem better than it is handled now. So long as our State Department is maintained at its present high standard, and is as actively interested in watching over health conditions in all sections of the State, and is giving assistance wherever it is sought, we believe no radical change in the fundamental plan is necessary. It is possible that the State Department might advantageously establish sub-centers in different parts of the State which should be the headquarters of the district inspector, and where he might be more readily and more quickly accessible to the local boards and the local physicians. If the demand is sufficiently urgent—and we have no accurate data to determine just how urgent it is—this step might be easily taken.

The problem for caring for the sick and disabled in the rural communities is a very different and far more difficult one. Here, however, as in the first problem, we are handicapped by lack of exact, accurate data as to how serious the problem really is. We do know that the number of doctors has not kept pace with the increase in population, that the disparity is growing steadily greater instead of less. We know, furthermore, the number of doctors per 1000 of population has not diminished in the cities, and that the loss must therefore bear most heavily upon the smaller towns. From the data gathered by Dr. Goldsberry, we know that there are many towns in Massachusetts without a doctor; and the survey made in New Hampshire is said to show no doctor in 120 out of 224 towns. It would be very interesting and very helpful if we could have a survey of conditions in this State; and a satisfactory survey ought not to be very difficult or very expensive. It would seem to your Committee that it could best be made by our State Department of Health, with such co-operation as the general profession might be able to lend. Even without this survey, we know enough to make an effort to improve medical conditions in our rural communities imperative if those communities are going to turn out men and women unhandicapped by physical defects and deficiencies. We cannot allow the human product of our country districts to deteriorate for want of proper health conditions.

The problem is by no means a simple one; its solution involves two fundamental factors which are beyond the power of the Massachusetts Medical Society to control, but which cannot be ignored.

First, the steady emigration of population in New England from the country to the city, which makes the country less and less attractive to the medical man who is just considering where to settle, and more discouraging to the man who is already settled there. It is pretty hard to persuade the country boy, who has spent four years at college, four years in the medical school, and a year in hospital service, amidst all the allurements of metropolitan life, to go back to the dwindling village from which he came, and still harder to make it look attractive to the city-bred boy. This is the first great handicap to the improvement of medical service in rural communities to overcome, and it is a good deal more than a medical problem. The second is the modern trend of medical education; the time it requires, the expense it involves, and its centralization. We have so raised the requirements for admission to our medical schools that the average country boy can hardly afford to spend the necessary time for his preliminary and professional training; and is still further discouraged by the expense involved. The college graduate in the mass is undoubtedly better material from which to recruit the profession than the country boy in the mass, but there are too many exceptions to be ignored. In Massachusetts, as in the rest of New England, the country boy has quite generally proved himself the possessor of two qualities which, when applied to our profession, have made him unusually successful as a practitioner: resourcefulness and sound common sense. In keeping the country boy out of medicine, the community, and especially the rural community, has been a great loser.

The centralization of medical education in the large cities, with a consequent long period of residence amidst the social and financial attractions of city life, is another factor, making it very difficult for the country boy who has been able to fit himself for medical practice, to give them up and go back to the country to live. Now these important factors in our problem—the natural movement of population, and the lack of attraction of general practice—are so far without the control of the Massachusetts Medical Society, that we can hardly do more than focus attention upon them.

There are, moreover, two or three ways in which the influence of the Massachusetts Medical Society may be effectively used to improve the position of the medical man in our smaller communities. For the prevention and control of epidemic diseases the facilities of the State Department of Health and its inspector should be brought in closer coöperation with the practising physician. This may be done by the establishment of local headquarters for the inspector within the district over which he has supervision, as already indicated, and by means of a closer coöperation between the inspector and the local Medical Societies. A regular meeting devoted to preventive medicine should be held by every District Society, and to this the Health Commissioner and Inspector of the State Department should be especially invited. Many minor causes of friction might thus be satisfactorily ironed out and a better mutual understanding promoted.

Another means of helping the physicians in the cities as well as in the rural communities is through the establishment of University Extension Courses similar to those which have been so successfully conducted in Worcester for the past few years. Six or eight lectures are given at intervals of one, two or three weeks by distinguished lecturers from the centers of medical education. The coöperation of the faculties of the Massachusetts Medical Schools is generously extended when asked for, and all that seems necessary is for some to take the initiative in

starting such courses. That the opportunity is open can be given publicity through THE BOSTON MEDICAL AND SURGICAL JOURNAL, and an agency might very properly be designated through which the community seeking such service and the men to render it might be brought together. These courses could be given in different centers and could be made available to the great majority of physicians in our cities and towns without difficulty.

Another means of assisting the medical man in the rural districts would be by a closer coöperation with approved hospitals conveniently located in different districts of the State. Diagnostic clinics could be given in which patients could be received at stated times, given a thorough examination, furnished with probable diagnosis and suggestions for appropriate treatment. Only such patients should be received who are accompanied by their physician or present a letter of introduction from him; and the report on diagnosis and treatment should be sent to the physician, and not given to the patient. To maintain such a clinic requires the presence of a physician at the hospital to conduct such examinations at stated days and hours. If the physicians in the territory tributary to this hospital are sufficiently interested to make the clinic worth while, it would not be difficult to obtain the coöperation of its staff. Should this plan work out satisfactorily the work could be extended to include public clinics at the hospital on certain days, providing what would be really an extension course in clinical medicine or surgery.

Your Committee is aware of the activities of the Standing Committee on Public Health under the direction of Dr. E. H. Bigelow, and realizes that the suggestions herein made are along the lines which that Committee has been following. In spite of the handicap of very much diminished financial resources, that Committee has inaugurated some exceedingly useful work among the District Societies. We believe that they are the logical agency through which such portions of our recommendations as commend themselves to your judgment should be given effective expression. We should therefore suggest that these recommendations be referred to that Committee to be carried out so far as and whenever the District Societies are willing to coöperate, and that an additional appropriation be made to meet the necessary expenses thereof.

HOMER GAGE, *Chairman*.
H. M. FIELD.
P. W. GOLDSBURY.
E. H. PLACE.
E. P. RICHARDSON.

APPENDIX NO. 5.

THE COMMONWEALTH OF MASSACHUSETTS,

OFFICE OF THE SECRETARY,
Division of Vital Statistics,

Boston, January 28, 1922.

Dr. Walter L. Burrage,
Eliot Street,
Jamaica Plain, Boston, Mass.

My dear Doctor Burrage:

I wonder if you would be kind enough to present to the meeting of the Council, on Wednesday next, certain aspects of the work of the return by physicians of the vital records of events of which they are in charge. I am trying to bring about a better

understanding between the physicians and this office relative to the proper classification of causes of death.

As you know, oftentimes the local registrars have certificates returned to them by this office, and they in turn must go to the physician for a more definite cause of death. A little thought and care on the part of physicians in making out the certificates would save a great deal of time and expense in compiling these very important records. Physicians, of all persons, realize the necessity of as complete a classification as possible and I feel sure that by presenting the matter in this way the coöperation to the end sought will be obtained.

I would also ask if you would be willing to mention the matter of prompt and accurate return of births. This phase of the work is probably in better shape than ever before, but there is still room for improvement. It is not wilful neglect, but carelessness on the part of some physicians which makes the collection of these very important data difficult.

The enclosed form R-17 (Supplemental Report of Birth) if left with the parents would be very helpful in checking up returns in a great many instances, and if the physicians would care to use this additional blank, to be left with the parents for their return, it will not only acquaint the parents with their duty, but will be very helpful in obtaining a complete record of the name of the child. I would be very glad to furnish these to any physician who may care to apply for them.

Assuring you of my appreciation of your coöperation and help, I am,

Very truly yours,
F. W. Cook, *Secretary*.

The Commonwealth of Massachusetts.

SUPPLEMENTAL REPORT OF BIRTH.

NOTICE.—Return this blank, properly filled out, to the City or Town Clerk, or in Boston to the City Registrar.

PARENTS WITHIN FORTY DAYS MUST REPORT BIRTH.

What is the name of your son born on.....19
daughter
Print or type
name of child here.....
(First name) (Middle name) (Last name)

REMEMBER YOU ARE RESPONSIBLE FOR RECORDING THIS INFORMATION. SEE LAW ON OTHER SIDE.

Sign your name here.....
(Father or mother)

Your address here.....
and send to the city or town clerk or registrar at once.

NOTICE.—RETURN THIS BLANK, PROPERLY FILLED OUT, IMMEDIATELY.

PARENTS BE SURE TO RECORD THE BIRTH OF YOUR CHILD WITH GIVEN NAME IN FULL.

READ THE LAW!

"Parents, within forty days after the birth of a child, and every householder, within forty days after a birth in his house, shall cause notice thereof to be given to the clerk of the town where such child is born."***** Gen. Laws, Chap. 46, Sec. 6.

SOME OF THE MANY

REASONS WHY BIRTHS SHOULD BE RECORDED

- To establish identity.
- To prove nationality.
- To prove legitimacy.
- To show when the child has the right to enter school.
- To show when the child has the right to seek employment under the child labor law.
- To establish the right of inheritance to property.
- To establish liability to military duty, as well as exemption therefrom.
- To establish the right to vote.
- To qualify to hold title to, and to buy or sell real estate.
- To establish the right to hold public office.
- To prove the age at which the marriage contract may be entered into.
- To make possible statistical studies of health conditions.

YOUR COÖPERATION TO THE END THAT ALL BIRTHS MAY BE PROPERLY RECORDED WILL BE GREATLY APPRECIATED.

NOTICE.—RETURN THIS BLANK, PROPERLY FILLED OUT, IMMEDIATELY.

Current Literature Department.

ABSTRACTORS.

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FRED S. HOPKINS	

BACTERIOLOGY AND PATHOLOGY OF FALLOPIAN TUBES REMOVED AT OPERATION.

CURTIS, A. H. (*Surg., Gynec. and Obstet.*, December, 1921). From the clinical history, examination of the external genitalia and evidence obtained at operation, together with laboratory study of the tubes in this series of nearly 300 patients, it has been possible to determine that gonococcal infection was responsible for the pathological changes in over 70% of the cases. Approximately 10% more were thought to have been primarily infected with the gonococcus, but this could not be determined with certainty.

In somewhat more than 15% of these patients the tubal pathology appears to have been entirely due to other pus-producing bacteria, notably various types of streptococci.

Tuberculous tubes, in the absence of generalized tuberculous peritonitis, were encountered in 5% of the cases.

Bacillus coli is particularly frequent in tubo-ovarian abscess of large size. As a primary cause of salpingitis neither the colon bacillus nor the staphylococcus appears to be of notable importance.

It has almost never been possible to obtain gonococci in cultures from thoroughly ground fallopian tubes removed from patients who have been free from fever and leucocytosis for a period of more than ten days or two weeks. The fallopian tube appears, therefore, not to be a focus for chronic gonorrhoeal infection. Persistently active gonorrhoea of the tubes is evidently ascribable either to recurrence of infection from without or repeated invasion of bacteria from the chronically infected lower genital tract.

Tubal infections with various types of streptococci yielded pathological evidence of an active inflammatory process long subsequent to the introduction of infection, and streptococci were occasionally isolated many months, or even years, after the acute process had subsided.

Gonorrhoeal pelvic infection primarily involves the tubes, with resultant thickening, induration, closure of her infection, a single attack of gonorrhoeal sal-amenable to separation by blunt dissection. Microscopically, the folds of the mucosa are found adherent, pockets of gland-like columnar epithelium extend deeply into the wall of the tube, blood-vessels are numerous, and plasma cells are characteristic.

If the patient can be early isolated from the source of the fimbriated ends, and pelvic adhesions which are pingitis is usually borne without protracted clinical symptoms or severe pathological results. Greatly thickened tubes are most often associated with repeated exposures.

Implicit reliance should not be placed upon haematosalpinx as dependable evidence of tubal gestation. Hemorrhage may occur in greatly thickened gonorrhoeal tubes.

Salpingitis nodosa, although most frequently of gonorrhoeal origin may be due to one of many causes, either inflammatory or non-inflammatory; the microscope best explains the etiology of any doubtful case.

In streptococcus infection tubal involvement is usually but part of the picture. Perisalpingitis is the most frequent type of tubal lesion. Even though there be an extensive salpingitis, the fimbriated extremities will very likely remain open; the mucous membrane folds, or "villi", of such tubes show few adhesions. On the other hand, with the less common occurrence of occluded fimbriae and accumulated fluid within the tube, adhesions are present between the villi and there are nests of columnar cells in the tube wall; differentiation from the gonorrhoeal tube is then difficult.

Tuberculosis is very likely to be overlooked if routine histological preparations are not made. When limited to the pelvic organs it is difficult to establish a diagnosis from the gross appearance alone. Unusually resistant adhesions suggest tuberculous or streptococcus infection.

Somewhat similar operative measures appear indicated in streptococcus and in tuberculous salpingitis. In both diseases infection is not usually confined to the tubes; in both, viable bacteria are often still present in the tissues at the time of operation and there is danger of chronic-postoperative infection of the ovaries. Particularly in regard to extirpation of the ovaries, more radical surgery appears indicated than in gonorrhoeal infections of corresponding severity.

The results of this work again direct attention to the dangers of uterine instrumentation. Nearly all streptococcus infections in this series were traceable to instrumental abortion or subsequent intra-uterine manipulation; some tubal infections recurred after curettage; tent dilatation was followed by streptococci pelvic abscess. It would appear that the normal uterus and fallopian tubes are comparable with an unopened tube of culture media; passage of instruments through the bacterial barrier of the internal os is analogous to removal of the cotton plug, and nature is not always able successfully to combat infection before serious lesions have resulted. This is particularly true if infection which has been previously introduced is stirred up through subsequent instrumentation. [E. H. R.]

MASSIVE HYPERTROPHY OF THE BREAST.

KEYSER, L. D. (*Surg., Gynec. and Obstet.*, December, 1921), writes as follows:

Massive hypertrophy of the breast is of two types: (a) fibroepithelial and (b) adipose.

It may occur between the ages of 12 and 48 but is most frequently associated with puberty or pregnancy.

The normal development of the breast seems to depend on the ovary, and there is evidence which strongly suggests that the massive hypertrophy may be etiologically related to an ovarian malfunction.

If spontaneous regression of the process fails to occur, surgical amputation is, at present, the preferred treatment. [E. H. R.]

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WALTER P. BOWERS, M.D., *Managing Editor*
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HEMATURIA AND THE GENERAL PRACTITIONER.

IN the BOSTON MEDICAL AND SURGICAL JOURNAL of June 17, 1920, appeared an article on the significance of hematuria.* This article was based upon a study of one hundred cases in which hematuria, not due to some obvious cause, such as trauma or specific urethritis, was a prominent symptom. Of the cases studied, thirty-two had infiltrating cancer of the bladder, eleven had massive papillomata and viscus, seven had single small papillomata of that viscus; in eight, the bleeding was due to a hypernephroma; in six, to cancer of the prostate. In 64 per cent. of the hundred cases, therefore, the hematuria was due to a malignant or to a potentially malignant condition. In the remaining 36 cases, bleeding was caused by benign enlargement of the prostate in seven, nephritis in seven, renal tuberculosis in five, hydronephrosis in three, calculus in eight, Banti's disease in three, and, in single cases, by polycystic kidney, diverticulum of the bladder, and papillary cystitis. In no case was the bleeding entirely without significance.

In regard to the cases of bladder tumor, it would be interesting to know how long a time intervened between the first hematuria and the

cystoscopic examination by which the diagnosis was made. Too frequently months or even years are allowed to pass before a case of hematuria is submitted to modern methods of study. This is especially true when the hematuria ceases within a few days, or when it is unaccompanied by distressing symptoms. These silent, intermittent hematurias are the ones which are most in need of investigation, for they occur when bladder tumors are young. The time spent in waiting for further signs of trouble may allow a tumor to develop an inoperable condition, and may cost the patient his life.

The multiplicity of urologists and the diagnostic opportunities offered by the larger hospitals make it comparatively easy for the patient to obtain exact information as to the existence of a bladder tumor. No excuse can be offered by the doctor who, seeing a case of hematuria, does not drive home the necessity for taking immediate steps to discover its origin.

Recent comments upon the position of the general practitioner in the medical world deplore his loss of prestige, a loss occasioned, it is alleged, by comparison with the more brilliant career of the specialist. If such loss of prestige exists, may it not be due at times to the assumption by the general practitioner of a knowledge which he does not possess, in declaring of no moment symptoms which later investigation shows to have been signals of danger?

No patient of any intelligence expects his medical adviser to combine in himself the wisdom of half a dozen specialists. He does expect his doctor to direct him to the proper person for examination requiring special training and skill, should the need for such examination arise. Unexplained hematuria always demands cystoscopy.

MORTALITY FROM SYPHILIS.

KNOWLEDGE of the effect of syphilis on mortality is vague because the apparent cause of death overshadows the morbid underlying and sometimes etiologic influence of syphilis. For example, a person dies from a cerebral hemorrhage and the return of death so specifies, but the ruptured vessel may be the expression of a disease of which the effusion of blood is the end-result. In a series of autopsies conducted in the Central Islip State Hospital, Long Island, N. Y., syphilis was regarded as the direct cause of death in twenty-seven per cent., and as a contributory factor in five per cent. more. Practically one-third of those dying in that institution were syphilitics. It should not, however, be construed from these facts that

*The Significance of Hematuria. A Study of 100 Personal Cases. By Arthur L. Chute. Boston Medical and Surgical Journal, Vol. clxxxii, No. 25, pp. 623-629.

syphilis causes one-third of the insanity of the country, for one may argue that the inherent instability in some mentally defective persons led to exposure, and the consequences thereof, but this large proportion of syphilitics does call attention to the importance of this disease in causing death, and should lead to a more scientific record of the etiologic importance of syphilis in reporting causes of death.

The Bureau of the Census, for 1920, records only 7,969 deaths from syphilis in the registration area, and the suspicion of inaccuracy in death returns is leading the United States Public Health Service to seek a basis for preparing more nearly accurate statements of deaths due to this disease.

Even pneumonia, acting as the immediate complication, has been used as a cause of death without qualifying explanation in cases which would have, in time, died of the syphilitic infection. So, also, tuberculosis, chronic nephritis, cancer, and many diseases of the nervous system, have been recorded without the real influence of syphilis appearing in the returns.

Although physicians dislike to put on a death return any statement relating to a disease which may give rise to adverse comment, one ought to remember that statistics are only of value in so far as they are true records; and since most of the intracranial causes of death not due to conditions such as acute infections, lesions of the viscera, and the vascular and nervous systems seem to demand, on the part of the practitioner, more investigations, in order that, when the time comes for filing death returns, the possible incidence of a disease which is far more widespread than is generally admitted, should occupy its true position as a factor in mortality records.

Hospitals are meeting these requirements to a growing degree, but many persons die outside of hospitals, and family physicians should render all possible assistance in the elucidation of problems relating to disease.

VI. VI.

THE MASSACHUSETTS TUBERCULOSIS LEAGUE is asking for evidence which will assist in the prosecution of the agents and manufacturers of viavi. This compound, according to the American Medical Association, is composed chiefly of hydrastis and cocoa butter. The claims made by the company are so extravagant that it may be possible to convince the courts of the fraudulent nature of the assertions put forward.

INCOME TAX FACTS

To avoid penalty, income-tax returns must be in the hands of collectors of internal revenue on or before midnight, March 15, 1922.

Every taxable return must be accompanied by a payment of at least one-fourth of the total tax due. Extensions of time for filing returns are allowed only in exceptional cases, illness, absence, etc. Applications for extensions under these circumstances should be addressed to the collector of internal revenue for the district in which the taxpayer lives. No extension beyond thirty days can be granted by a collector. Requests for further extensions must be addressed to the Commissioner of Internal Revenue, Washington, D. C.

For failure to make a return on time the penalty is a fine of not more than \$1,000 plus 25 per cent. of the tax due.

For failure to pay tax when due or for understatement of the tax through negligence, there is a penalty of 5 per cent. of the tax, plus interest at 1 per cent. a month until paid. For making a false or fraudulent return the penalty is a fine of not more than \$10,000, or not exceeding one year's imprisonment, or both, together with the cost of prosecution and an additional assessment of 50 per cent. of the amount of tax paid.

NEWS NOTES.

A DEMONSTRATION clinical meeting was held at the Beverly Hospital Tuesday, February 21, 1922. Interesting cases were shown and open discussion followed.

THE Eighteenth Annual Meeting of the National Tuberculosis Association will be held in Washington, D.C., May 4, 5 and 6, 1922. The headquarters, at which all sessions of the meeting will be held, will be at the First Congregational Church, corner of 10th and G Streets N. W. The annual meeting follows immediately after the Triennial Congress of Physicians and Surgeons, which meets in Washington May 2, 3 and 4. No hotel headquarters will be reserved at Washington. Members and others who are attending are urged to make reservations early in view of the meeting of the Triennial Congress immediately preceding and slightly overlapping. The Raleigh, the New Willard, and the Harrington are within five or six blocks of the First Congregational Church.

DURING the week ending February 18, 1922, the number of deaths reported was 245 against 222 last year, with a rate of 16.73. There were 36 deaths under one year of age against 35 last year.

The number of cases of principal reportable

diseases were: Diphtheria, 67; scarlet fever, 60; measles, 123; whooping-cough, 7; tuberculosis, 81.

Included in the above, were the following cases of non-residents: Diphtheria, 6; scarlet fever, 9; tuberculosis, 47.

Total deaths from these diseases were: Diphtheria, 2; scarlet fever, 1; measles, 2; whooping-cough, 1; typhoid fever, 1; tuberculosis, 18.

Included in the above, were the following cases of non-residents: Scarlet fever, 1; measles, 1.

Influenza, 462 cases; 7 deaths.

Lobar pneumonia, 65 cases; 28 deaths.

DR. S. BURT WOLBACH has been appointed *Shattuck Professor of Pathological Anatomy*, succeeding Dr. WILLIAM T. COUNCILMAN, who has resigned.

THE death rate from tuberculosis fell 18% in New York City for 1921. This means a saving of 1213 lives as compared with the preceding year. Up to 1919, about 10,000 deaths from tuberculosis occurred each year. Last year the number was 5922. The reasons ascribed to this marked improvement are better sanitation, better living conditions, and the increase of the Jewish population. This race has a high immunity rate as compared with some other races.

Miscellany.

LEGISLATIVE MATTERS.

HOUSE 1042 accompanying the petition of Gorham Dana that certain notices be given of the establishment of hospitals and sanatoria; and relative to the licensing and supervision of such institutions, has been referred to the Committee on Legal Affairs for hearing on March 8.

The bill is very long and, though slightly less drastic than a similar bill proposed last year, is definitely directed against private hospitals.

The first section, 73A, would require a state license for any new hospital or any hospital which is not a *bona fide* charitable hospital.

Section 73B grants the Department of Public Health the power to license and inspect hospitals.

Section 73C provides that the local board of health may and that on complaint the Council or aldermen or selectmen shall inspect any hospital as above.

Other sections which follow contain very complicated provisions regarding the securing of licenses, among other matters stipulating that the place, site and building are suitable

and will not be injurious to the welfare, health or morals of the community, and that the community will not suffer loss or detriment.

Section 73J provides that in Boston the street commissioners, or elsewhere the aldermen or selectmen, shall be notified of any application for a license and shall hold hearings.

Section 73K provides for advertising in the newspapers and notifying all property owners and residents near the proposed location of the hospital. The next section provides hearings on complaint of any six neighbors.

The bill is complicated, is full of obnoxious provisions, while at the same time it appears to make certain reasonable provisions.

BOSTON ETHICAL SOCIETY.

A DINNER meeting of the Boston Ethical Society, devoted to the subject of Ethics in the Practice of Medicine, was held on February 15, 1922, at Hotel Victoria. The speakers were: Dr. L. R. G. Crandon, Dr. I. H. Coriat, Dr. A. Myerson and Dr. W. C. Woodward. Each speaker discussed the subject principally from the angle of his own specialty. A number of interesting points were considered, such as the standard of medical ethics in Greek medicine, the attitude of the physician to his patients, towards other physicians and to the community, the question of privileged communications, and finally, the question of telling the patient the truth.

BOSTON MEDICAL LIBRARY IN CONJUNCTION WITH THE SUFFOLK DISTRICT MEDICAL SOCIETY. GENERAL MEETING JANUARY 25, 1922.

X-RAY TREATMENT OF CANCER OF THE BREAST.

By GEORGE E. PFAHLER, M.D., PHILADELPHIA.

DISCUSSION.

DR. L. B. MORRISON: We who are doing this work always look to Dr. Pfahler to lead us, and he certainly has. It has been a discouraging work in some respects, because it is a very discouraging disease. In the years that I have been working, and in watching other men, I have seen many encouraging things in this treatment. Many of the cases, after treatment, have had renewed life, and have finally died from a development of the disease internally, without knowing what caused their death. That was worth while. In going over my cases from 1916 to 1920,—about 125 or 130,—it was interesting to see the number of cases that are living and well today, and many of them had rather extensive metastases. It was interesting to compare certain types of cases. I have

in mind two cases sent to me by Dr. Cheever about three years ago. The first was a recurrence which came almost as soon as the patient got out of the hospital. I gave a very extensive treatment, and in three weeks it had sloughed away, with a clean scar. In six weeks, she came back with a cauliflower growth, and died in a very short time. At the same time he sent another patient which he thought was absolutely hopeless, because the operation had been much more extensive. It had been necessary to remove part of the clavicle in order to operate. I gave the patient treatments, and she is living and fairly well today. She has an occasional recurrence in the skin, back of the neck and down over the abdomen, but one dose removes it. Why couldn't we stop the recurrence in the first case? I do not know. It shows that there is a malignancy which takes much more than an erythema dose to kill. So many times recurrences come in the breast while x-ray treatment is going on. Perhaps it is because more doses are required over a definite area. The surgeon can help very much in giving us the location of the disease and in the study of just where metastases most frequently occur, so that we can cover these areas more thoroughly. Occasionally we get low recurrences because, I think, we do not give enough dosage. I was much interested in watching the skin reactions in the pictures shown. Only in more recent years we have dared to get a skin reaction, but we must get this reaction in order to get relief, and it must be severe in the more severe cases. One never knows which case will give a positive result. The pitiful thing is, that after the lesions are cleared up, bone recurrences will be found. I have a patient who is well, as far as can be seen, but every bone in her body is riddled, and she will certainly develop a toxemia. It can be said that many of the treated cases die easily. They fade away with a toxemia, but they die much easier than those without x-ray treatment. The type of cases which Dr. Pfahler has shown are those which involved the deep fascia and are a difficult type to treat. I have a patient in mind who, six years ago, had her left breast removed. Six months later, she came in with two areas of deep skin involvement. I treated her for two years. Now I am treating the other breast. She has had six years of good, useful life, and now she has come back again for a second series over the other side. Pathologists some day will tell us what there is about a malignant growth which requires less dosage in some cases than others.

DR. GEORGE W. HOLMES: I would like to emphasize some of the things that have been said, as they bear out my experience. First, the difficulty in getting definite statistics. We tabulated our cases about a year ago and one of the

first difficulties we met was deciding what kind of a case we started with. Before we can get worth-while statistics we must decide what type a case belongs to. This is essential. Then, as we see the cases, we can group them into three main groups: the case where there is no evidence of metastasis. That, of course, is a surgical case. Whether to give pre-operative treatment and post-operative treatment or not is still a question in my mind. Dr. Pfahler would prefer giving them treatment. I am a little in doubt. It means quite a bit for a patient to go through. Just how much we increase the percentage of cures, I am not entirely sure. Second, there is the case where there is no question but that metastasis has taken place and the surgeon is not sure that he has removed the entire growth. In that case, we are justified in treating with x-ray. The third type of case is that which has gone so far that operative cure is impossible. What shall we undertake in such a case as that? If we have a partial operation and x-ray, either before and after, shall we get any better result than with x-ray alone? If so, shall we go ahead with the idea that the patient is to be cured, or are we alleviating the symptoms and prolonging life? I think we can do a great deal in the alleviation of symptoms. We can prevent the carcinoma from breaking down on the surface and making a disagreeable sore, and we can do this in the majority of cases, without making the patient definitely sick. I am inclined, in this group of cases, to aim to make the patient comfortable. Regarding the systemic effect, we know that we can do certain things to the cell. We do not know what we can do to the individual. Is their resistance stimulated by the radiation and does this resistance help to overcome the disease? I think spontaneous cures are not unheard of. The hemoglobin picture improves, the general health improves. Is there any effect on the enzymes of the body? I think this should be considered in the treatment. I would like to ask Dr. Pfahler how often he repeats his treatment. Shall we give one thorough radiation and let the patient go, keeping her under observation, or shall we repeat the dose in three months and again in six months, providing there is no evidence of the disease?

DR. S. W. ELLSWORTH: I would like to emphasize what Dr. Pfahler has brought out, that with all the study done in surgery and in x-ray and radium treatment, still the outcome is very uncertain and any case, apparently, is very doubtful until years have elapsed. That is why we have a difficult problem to meet in the beginning, even in the apparently simple cases. Coöperation of the surgeon, pathologist and the radiologist from the beginning is, therefore, very important. An early diagnosis

is the crucial point in considering prognosis, and for prognosis to be far-seeing the treatment must continue for three to five years to come.

DR. R. B. GREENOUGH: In regard to the pathological classification of these cases, we distinguish a number of different kinds of cancer of the breast, and it is a well-established fact that some of the varieties of the disease are extremely malignant and others are at the other end of the scale. Some cases may show practically no progress for twenty years. We must recognize that certain types of cancer, from their nature and history, are of distinctly slow growth if not interfered with. On the other hand, there are some types, like those in pregnant women, of the lactating breast tumors or of the fibrous structure tumors, which grow with great rapidity; and of adenocarcinoma, which grow slowly in their original location, but which have a very high percentage in the occurrence of bone metastases which appear long after the removal of the original tumor. It makes a great deal of difference in the result as to which one of these types of disease we may be working with. As Dr. Holmes said, it is extremely difficult to get any satisfactory statistics on these cases, because we must have an enormous number of cases before we can get enough data to make our statistics of any particular value. At the present time we are justified in thinking that radiation, either with radium or x-ray, does help and produces very definite effects where it can be brought closely in contact with the lesion. It is the superficial lesion of breast cancer recurrence or the superficial lymph-nodes that are more readily affected by radium and x-ray. The same findings have held true in regard to the use of radium and the radiation treatment of other lesions. Perhaps we may say that the success of the radiation treatment of these more superficial lesions is our best argument that a more effective radiation like that of the high-powered x-ray may well give us control of some of the deeper metastases that we now do not have.

DR. PFAHLER (in closing): First, I believe that every one of these cases ought to be seen by the pathologist, the surgeon and the radiologist conjointly, and then the decision made as to the best course of treatment in that individual case. Secondly, I believe that every case of carcinoma anywhere in the body ought to have radiation and, preferably, before the operation and after the operation. Answering Dr. Holmes, routinely I would advise a preliminary course of treatment requiring about two weeks, and in two weeks the treatment repeated and then ended unless there is some recurrence. This is the present idea. After a time, we will learn more definitely how much we should give. I don't think we ought to keep it up indefinitely. Third, I would like to emphasize the importance of having the patient come back once a month to see that nothing abnormal develops.

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

REPORT OF WEEK ENDING FEBRUARY 18, 1922.

Disease	No. of cases
Anterior poliomyelitis	1
Chicken-pox	153
Diphtheria	188
Dog-bite	1
Epidemic cerebrospinal meningitis	1
German measles	20
Gonorrhea	78
Influenza	1734
Measles	512
Mumps	149
Ophthalmia neonatorum	10
Lobar pneumonia	253
Scarlet fever	265
Septic sore throat	2
Syphilis	35
Suppurative conjunctivitis	2
Trachoma	1
Trichinosis	5
Tuberculosis, pulmonary	169
Tuberculosis, other forms	18
Typhoid	6
Whooping-cough	127

NOTICES.

THE SPRINGFIELD ACADEMY OF MEDICINE.—On the evening of March 7, 1922, at the Central High School Hall a public meeting, under the auspices of the Academy, will be held for the purpose of emphasizing to the laity the sound, scientific basis on which the practice of medicine rests. The speaker will be Dr. Ernest LaPlace, Professor of Clinical Surgery at the University of Pennsylvania, and a graduate of the University of Paris. He has chosen for the subject of his address, "Louis Pasteur," whose pupil he was for many years.

Members are urged to report interesting cases more frequently.

The Academy wishes to enlarge its membership. Will members please see that every eligible physician receives and signs an application blank?

The January meeting of the Springfield Academy of Medicine was held Tuesday, January 10, with Dr. Hugh Auchincloss of New York City as speaker. Dr. Auchincloss read a paper entitled "Surgery of the Hand." Luncheon was served after the meeting.

ALLEN G. RICE, *Secretary*.

CHILDREN'S HOSPITAL.—Clinical Meetings of the Staff of the Boston Children's Hospital will be held in the amphitheatre once a month from November to May inclusive. The meetings will be held on Friday afternoons at 4.30 P.M. All members of the profession are cordially invited to be present. The dates of the meetings are November 4th, December 9th, January 13th, February 10th, March 10th, April 14th, and May 12th.

NEW ENGLAND PEDIATRIC SOCIETY.—The seventy-third meeting of the New England Pediatric Society will be held at the Boston Medical Library, on Friday, March 10, 1922, at 8.15 P.M.

The following papers will be read: (1) Disorders of the Breast in the Early Days of Lactation, Robert L. DeNormandie, M.D., Boston; (2) Unilateral Hypertrophy of the Breast in Childhood, James S. Stone, M.D., Boston; (3) Oral Disorders in Pediatrics, S. A. Cohen, M.D., Boston.

Light refreshments will be served after the meeting.

RICHARD M. SMITH, *President*.
LEWIS WEBB HILL, *Secretary*.

THE BOSTON TUBERCULOSIS ASSOCIATION is planning an Institute for Nurses on the same plan as the recent one by this Association, for Physicians. It is intended to give to the nurses the latest facts with reference to the care of patients with tuberculosis, and speakers from outside the State will supplement home talent. The Institute will be in the hands of a committee including Miss Zepha M. Gardner, Superintendent of Nurses, Boston Consumptives' Hospital, Out-Patient Department; Professor Anne Strong of Simmons College, and Miss Bernice W. Billings, Executive Secretary of the Association. A location central in Boston will be selected for the Institute, the date will be Tuesday, March 21, subject to possible change, and the sessions will be in order both morning and afternoon 7-3t

MASSACHUSETTS GENERAL HOSPITAL.—A clinical meeting of the Staff will be held in the Lower Out-Patient Amphitheatre at 8.15 P.M., Monday, March 13th. Program:

Points Concerning Bile Pigment Metabolism, Dr. Chester M. Jones; Studies of the Causes of Death in Early Infancy, Dr. Eli C. Romberg; Results from Quinidin Therapy, Dr. Louis E. Viko; Metabolism in a Case of Acute Myelogenous Leukemia, Dr. William G. Lennox.

Doctors, nurses and medical students invited.

F. A. WASHBURN, M.D., *Director*.

HARVARD MEDICAL SOCIETY.—The regular meeting was held in the Peter Bent Brigham Hospital Amphitheatre, Tuesday evening, February 28. Program: "The Natural History of Biliary Obstruction." Speaker: Dr. Peyton Rous, Rockefeller Institute.

At the meeting of the Research Club of Harvard Medical School, to be held on Friday, March 3rd, in the Amphitheatre in Building A, Dr. T. M. Carpenter will talk on: "Metabolism Studies with Emetina of Alcohol, Dextrose and Levulose."

NOTICE OF EXAMINATION FOR ENTRANCE INTO THE REGULAR CORPS OF THE UNITED STATES PUBLIC HEALTH SERVICE.

Examinations of candidates for entrance into the Regular Corps of the United States Public Health Service will be held at the following named places on the dates specified:

Washington, D. C., March 13, 1922; San Francisco, Calif., March 13, 1922; Chicago, Illinois, April 3, 1922.

Candidates must not be less than twenty-three years nor more than thirty-two, and they must have been graduated in medicine at some reputable medical college, and have had one year's hospital experience or two years in professional practice. They must pass satisfactorily oral, written, and clinical tests before a board of medical officers.

Successful candidates will be recommended for appointment by the President with the advice and consent of the Senate.

Requests for information or permission to take this examination should be addressed to the Surgeon General, United States Public Health Service, Washington, D. C.

H. S. CUMMINS, *Surgeon General*.

A COURSE IN MEDICINE AND PATHOLOGY AT MASSACHUSETTS GENERAL HOSPITAL.

A COURSE in "Medicine and Pathology" will be given in the Amphitheatre of the Pathological Laboratory by Dr. William H. Smith, Visiting Physician of the Massachusetts General Hospital, and Dr. Oscar Richardson, Assistant Pathologist of the Massachusetts General Hospital.

The complete clinical records of cases coming to autopsy will be presented by Dr. Smith, who will discuss the differential diagnosis. The pathological findings will then be stated, the organs demonstrated and the pathology of the cases discussed by Dr. Richardson. This will be followed by a general discussion of the cases, viewed in the light of the completed records, and attention will be called to the newer diagnostic methods and to the broad principles of treatment involved. Microscopical preparations and lantern slides will be used when necessary.

There will be nine exercises, on Wednesdays, in the months of March and April, between 3.15 and 5.15 P.M.

The course is open to graduates in medicine and medical students of the third and fourth years, subject to their acceptance by the hospital.

Women admitted.

Given in connection with the Harvard Graduate School of Medicine.

A fee of \$5.00 will be charged for the course. Application should be made to

FREDERIC A. WASHBURN, M.D., *Director*,
Massachusetts General Hospital, Boston, Mass.

THE AMERICAN ASSOCIATION of Anaesthetists and the Mid-Western Association of Anaesthetists will hold a joint meeting in St. Louis, May 23-24, at Hotel Jefferson, the first three days of the A.M.A.

DR. JOSEPH GARLAND, of Boston, will give a demonstration of the Schick Test at the Heywood Hospital, Gardner, at 5 o'clock P.M., Thursday, March 2.

RECENT DEATHS.

ROBERT WILLIAM FORSTER, a practicing physician of Lawrence, died there at his home, of pneumonia, February 7, 1922, at the age of 46. He was born in Montclair, New Jersey, October 18, 1875, the son of Robert and Mary Fleming Forster. His education was obtained in the Lawrence public schools and at Tufts College Medical School in Boston, where he graduated M.D. in June, 1900. Settling in practice in Lawrence after he had served as house officer at St. John's Hospital, he conducted an active professional life, becoming obstetrician to the Lawrence General Hospital and entering into the activities of the Lawrence Medical Club, the Masons, Odd Fellows, Knights of Pythias and Merrimack Valley Country Club. He joined the Massachusetts Medical Society in 1901 and was a member of the American Medical Association. He is survived by his widow, who was Miss Grace Chapman of Lawrence, and by a son and a daughter.

JAMES WOODBURY TWOMBLY, a graduate of Harvard Medical School, in the class of 1910, and a practitioner at Stoughton, Mass., died in Boston, February 21, 1922, at the age of 38.

IMPORTANT NOTICE.

Announcement of meetings to be held on and after next Thursday should reach the desk of the Editor of the JOURNAL not later than next Saturday before noon. The printers do not work Saturday afternoon and the material is locked up in the forms on Monday, and goes to press Tuesday morning. The wrapping and mailing begins Wednesday. Please forward copy early.

The Boston Medical and Surgical Journal

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Original Articles.

INDICATIONS FOR OPENING THE MASTOID CORTEX.*

BY FRANCIS P. EMERSON, M.D., BOSTON,

Surgeon, Massachusetts Charitable Eye and Ear Infirmary.

THE classical symptoms of mastoiditis and the indications for operating are clearly outlined in every standard text-book. For the student the didactic description of a typical mastoid is necessary, and the exceptions and typical cases must be learned in the hard school of experience. Even for the consultant it is one thing to see a case in a well-ordered institution with all its facilities for laboratory and X-Ray help, and where an early paracentesis has been done, and quite another problem to be called on the fourth or fifth day of an active middle ear to decide whether to operate or not. An incomplete or no paracentesis may have been done and the case may be so far removed from hospital assistance that reliance must be placed on symptoms that experience teaches indicate or contraindicate removal of the mastoid cortex. Fortunately these symptoms of advanced bone involvement have been studied until today few cases are met with that do not have some one indication present to warn us of danger, although there is no one symptom but what may be absent.

Indications: The indications that justify the removal of the mastoid cortex may be given under three heads:

First, to remove a pyogenic focus threatening the life of the patient.

Second, to conserve hearing.

*Read before the Philadelphia Laryngological Society, Nov. 1, 1921.

Third, to prevent a chronic mastoiditis.

In the presence of threatened complications all these indications may be present in one case or any one indication may lead us to decide that the best interests of the patient favor an immediate mastoid operation.

With an acute middle ear and mastoid involvement it may be said that operation is the safer alternative. In order, however, to obtain an early dry middle ear and good hearing it is necessary to choose a time for the operation when the bone abscess has commenced to be walled off by a leukocytic barrier, that is, has commenced to limit itself so that the involved area is definitely outlined and the infection has commenced to subside. In a series of twelve cases operated by the writer, in five cases the middle ear was dry on the fourth day, one on the fifth, one on the sixth, one on the seventh and four on the thirteenth to fifteenth day. While the type of infection, the resistance of the patient, and the question of re-infection must be considered as factors in delayed healing, yet the judgment of the operator as to when to operate, the writer feels, is the most important. We must remember that in all cases of virulent middle-ear infection the mastoid is involved, and to operate in the congestive stage means a prolonged middle-ear discharge and the danger that deeply placed cells may break down later. This is particularly true if the operation is done when the resistance of the patient is low, as is the case when mastoiditis complicates an infectious disease. The writer observed two such cases in one service. One patient had a simple mastoid by an experienced operator, and almost immediately showed symptoms of whooping cough. The mastoid healing went on normally. The temperature had been

normal for three weeks, the wound was healed except for a stitch abscess at the lower margin. At the end of the fourth week the patient had sudden marked pain in the head, the temperature went up to 102° , and the white count to 26000. No other cause being found, the wound was re-opened by the writer, the cells found broken down around the lateral sinus, and the sinus thrombosed back to the torcular. The other case showed late involvement of the deep cells, but was otherwise of no particular interest. The question of which mastoid to open when both sides are involved is often a serious problem for the most experienced. In most cases of acute middle ears with mastoiditis we have as symptoms changes in the membrana propria, discharge, temperature, tenderness over the antrum and tip with sagging of the posterior superior canal wall. How far can we depend on these symptoms as indications for operative interference? Are there any other symptoms of equal importance in making our decision?

Membrana tympani. A nipple perforation with a fibrinous exudate in the middle ear or a so-called boggy membrane at the end of a week often indicates a low-grade process with a tendency to become chronic.

Temperature. The temperature is of no diagnostic significance, and rarely goes much over 102° .

Posterior superior wall. Sagging of the posterior superior wall is perhaps the most constant and reliable symptom for operation in acute mastoiditis that we have. Even this symptom may be valueless owing to a circumscribed or diffuse external otitis. When the canal infiltration and a middle ear are associated, and particularly when the oedema has extended to the mastoid cortex, the diagnosis may be very difficult.

Tenderness over the antrum and tip of the mastoid. This is usually present during the first three days, and then as the periostitis subsides may entirely disappear. In itself it is not an indication for opening the cortex as it is present in practically all cases of acute congestion of the mastoid bone whether it is to undergo resolution or not. Another local symptom is of great importance, and is illustrated by the following case: A policeman was brought to the office with an acute ear. The drum was bulging, and there was extreme tenderness over the entire cortex. A free paracentesis was done under gas. The third day his physician phoned that the discharge had stopped and the tenderness had all gone. He improved so that on the sixth day he was out of doors. On the seventh day he had extreme pain, and an immediate operation was done when the entire bony structure of the mastoid was found broken down. In this case, whatever the condition of the patient, there was one symptom that should have indicated danger and the need of an operation, and that was swelling back of the tip with tenderness over the emissary vein. In the expe-

rience of the writer, when this comes on with the subsidence of the periostitis we can predict deep bone destruction as probably going on. The absence of pain after the third day is not unusual as the breaking down of the bony framework is not accompanied by pain unless a periostitis is present.

Discharge. The discharge after seven or eight days has two valuable diagnostic features. We say after seven or eight days, for the observation of Schwartze that few acute mastoids need to be opened until the eighth day after the onset of the middle ear, with exceptions, still holds good. Then if the discharge is more than can be accounted for by the middle-ear condition, or if the serous discharge has become purulent, immediate operation is indicated. This is especially true if the patient is toxic.

Duration. After considering all the above indications for opening the cortex, we must also take into account the duration of the mastoid infection. Any case that does not show signs of improvement after ten days may justify operation to preserve hearing or prevent a chronic mastoiditis.

Another danger in operating too early should be pointed out before leaving our consideration of acute mastoiditis. That is that the original infection in the nasopharynx may not have quieted down and the middle ear may become re-infected. This was shown in a case of double mastoid operation where the patient did well for three days when there was a marked increase in the middle-ear discharge. On removal of the tonsils the discharge immediately quieted down, and there was a dry middle ear on the seventh day on both sides.

Night pain. As the patient seems to be convalescing it is always a suspicious symptom to have pain at night. This comes on after the patient has dropped to sleep, and may be only sufficiently severe to awaken him. During the day it may be entirely absent and the patient feel normal.

Leukocytosis. The white count is a help only, and may vary from 10000 to 18000, and is more an indication of the resistance of the patient. When there is a sudden increase to 25000 or more, accompanied by a chill, it is a valuable indication of some complication, usually a sinus infection. The gradual recession is also indicative of a probable favorable termination. The polymorphonuclear neutrophils are increased from 70% to 85% to 90%, and a sudden drop to 70% shows a loss of resistance. A high polymorphonuclear percentage indicates the severity of the infection.

Bacteriology. Type of infection: The streptococcus mucosus and pyogenes or the pneumococcus with the micrococcus catarrhalis is considered by Loeb and Beck to strongly indicate that an operation will be necessary. This is an indication only, for patients react differently to the same infection.

Type of mastoid. The type of mastoid is to be considered. The pneumatic mastoid is more apt to undergo resolution with useful hearing, and the infantile type, in a general way, is more apt to become chronic.

The X-Ray is a valuable aid to diagnosis if we remember its limitations, especially after the acute symptoms have subsided. It is very rare that we should consider operation on the X-Ray picture alone. It needs the clinical picture to reinforce it and some one skilled in its interpretation.

A high temperature, associated with nausea and vomiting, convulsions or severe headaches, would indicate immediate operation if mastoiditis were present. In children these symptoms might come from a middle ear alone; therefore, a free paracentesis may change the whole picture.

While the clinical picture of mastoiditis must be taken as a whole in forming an opinion for or against operation, yet the individual symptoms vary markedly in relative importance, and some are almost diagnostic of surgical mastoiditis alone. The one safeguard against mastoiditis, as a complication of acute otitis media, of supreme importance, is early and free incision of the drum membrane.

Chronic cases. Indications for operation: (1) continued suppuration resisting local treatment and accompanied by anemia and poor resistance of the patient; (2) chronic discharge with cholesteatome; (3) chronic mastoiditis with acute exacerbations in which the hearing is practically gone and treatment is unsuccessful; (4) chronic mastoiditis with facial paralysis, chronic unilateral headache, labyrinthine or meningeal irritation. All cases showing any labyrinthine reaction are included advisedly. During the last ten years it has been the policy of the surgeons of the Massachusetts Charitable Eye and Ear Infirmary to do a radical mastoid without opening the labyrinth as long as there was any cochlear or vestibular response. During this time only one case of meningitis has followed this practice. Not over two or three cases have been seen in which there was not some labyrinthine response, excluding cases of dead labyrinth. In 1920 there were 3000 ward cases and an average of 114 daily out-patient cases treated. (5) Chronic mastoiditis with polypi springing from the promontory and oval window.

While the tendency to operate is less marked than formerly, yet it should be impressed on the public and general practitioner that a chronically discharging ear is a menace to life. While aurists have felt that many patients died annually from meningitis due to an unrecognized aural origin, yet the number of cases was not appreciated until the statistics of Kittredge were published in 1912. His investigation showed that in the State of New Hampshire there were more deaths from a simple meningitis, excluding tubercular and cerebro-spinal

meningitis, than from diphtheria and scarlet fever combined; one-half of his statistics covered a period before the use of antitoxin. During a period of four years there were 815 deaths from simple meningitis, and, as he says, it is fair to assume that most of them were secondary to a middle ear. The sequence of events is sometimes as follows:

Miss M., aged 14, had had a chronic scanty middle ear discharge since childhood. An acute nasopharyngitis was accompanied by marked frontal sinus pain. On the sixth day she developed a temperature of 104°-104.5° and became unconscious. No complaint had been made of the ear, and the frontal sinus pain led the attending physician to suspect meningitis. A rhinologist was called in who happened to be also an aurist. During the routine examination a foul discharge was found in the middle ear and evidence of mastoiditis with probable sinus thrombosis. The patient was still unconscious, and operation was refused on the ground that she would die anyway. The writer saw the case in consultation, and advised tying the jugular. Practically no anesthetic was used, except for the skin incision. The mastoid was rapidly opened and the jugular tied by Dr. Porter. The patient recovered, and left the hospital on the fourteenth day.

The local subjective symptoms in chronic mastoiditis may be entirely absent. There is a history of continuous or intermittent discharge. If intermittent during the acute exacerbation, the sagging of the posterior superior wall and possible tenderness back of the tip may be present. The subjective symptoms, however, in chronic cases, are not usually due to a periostitis and acute bone congestion with toxemia, but to interference with drainage and pressure, hence the pain is usually referred to the head. Sometimes the milder symptoms, such as headache and occasional dizziness, have been endured by the patient for a long time until sudden vertigo, nausea, severe headaches, convulsions or symptoms of meningitis demand relief. When patients do apply earlier on account of tinnitus, foul discharge or loss of hearing, the seriousness of the case requires a careful neuro-otological as well as middle-ear examination. More often they should be observed over some time before a definite conclusion can be reached. In the interval all foci in the nasopharynx that might excite an acute exacerbation should be removed and the drainage from the middle ear promoted by incision and the removal of desquamating epithelium, pus and bone detritus. Following this treatment, if the discharge does not stop or there are symptoms of complications, a radical operation should be done. We must remember that all the symptoms of meningitis, including a bacteremia with virulent organism in the spinal fluid, may be due to a complicating sinus infection, and prompt removal of the cortex and ligation of the jugular may save the life of the patient.

THE INFECTED COLON AS RELATED TO THE TOXIC PSYCHOSES.*

BY JOHN WILLIAM DRAPER, M.D., F.A.C.S.,
NEW YORK.

Attending Surgeon, State Hospital at Trenton.

THE work here presented is a portion of the epoch-making research into the nature and treatment of insanity, conceived and executed by Henry A. Cotton, Director of the State Hospital at Trenton, New Jersey, and to him, with deep appreciation, I make acknowledgment of the privilege of sharing in his work and of contributing that minor portion which my technical surgical knowledge and researches have made possible.

As to the important and far-reaching consequences of this work in solving, as it does to large degree, the problem of the insane, I have only to quote from the speech of Hubert Work, President of the American Medical Association, October 21, 1921, at the recent dedication of the new surgical pavilions for preventive insanity, granted to Dr. Cotton by the New Jersey Legislature for the State Hospital.

"When mental derangement was finally recognized as a symptom, the treatment of it instantly gathered to it all that was known in medicine with the additional necessity for hospitals with scientific equipment. This institution is an expression of the public mind of the people of New Jersey, a composite picture of their social morals, their charity and Christianity in its broadest sense, and it is, as well, a monument to the most advanced civilization of her people. Speaking for the organized medical profession of the United States, almost 100,000 ethical, earnest men and women, I congratulate the people of New Jersey, compliment its medical profession and approve the direction, length and the number of steps it has taken towards ministering to minds diseased."

For those who may have further interest in this interesting problem, I recommend a careful perusal of Dr. Cotton's Van Uxem Lectures delivered at Princeton University last spring, and now being published by Scribners, "The Defective, Delinquent and Insane."

The term 'toxic psychosis' for the purpose of this paper includes acute depressive insanity, dementia praecox and certain of the 'paranoid' state, thus embracing all the so-called 'functional psychoses.' Of the admissions to the State Hospital at Trenton, half are classed as toxic psychoses, a ratio which would be fairly constant in the country at large.

Of this great group let it be said briefly but definitely that under modern methods of diag-

nosis each and every patient has been found to harbor extensive foci of infection. The most constant finding has been oral infection, practically all these patients having badly infected teeth and tonsils. However, in only about 25% of all the cases is the infection limited to the mouth. A study of over five hundred women belonging to the toxic psychotic group has shown that severe cervical infection is present in over 75%, this infection being non-venereal and by no means limited to parous women. Gastro-duodenal infections have averaged about 40%. Severe and damaging infection has been found to exist in the lower intestinal tract, chiefly in the colon, in about 20%. As to the incidence of these foci of infection very little is known as regards the relative time of their occurrence, but prolonged experience with them has convinced Dr. Cotton that the primary focus is most frequently in the teeth and tonsils. He has repeatedly called attention to the fact that, when the teeth are infected, the tonsils are almost sure to be, and *vice versa*. Some of the foci, as has been noted by other observers, may properly be looked upon as secondary extensions from the primary foci. Examples of this are considered by us to be seen in the frequently noted seminal vesiculitis and in infection of the antra. An important point about the seminal vesicles that we have noted in a series of over one hundred cases, chiefly among criminal insane, is that although colon and streptococcus vesiculitis was as high as 33%, it was not so often found in the earlier stages of the psychosis as in the later, as average duration of from three to four years having been noted. The inference from this clinical observation is that, as above stated, infection usually occurs secondarily through the lymph or hemic channels, probably from the teeth and tonsils.

This paper, however, bears specifically upon the gastro-intestinal lesions, which, until some better form of the apensis is established, can be dealt with only by surgery. Originating largely in mechanical conditions, both congenital and acquired, it is to be expected that such lesions should react to mechanical methods of treatment. As the success of our work is to be explained largely by the complete synthesis of medicine and surgery and an abolition of all the foolish jealousies so frequently existing between their advocates, it is hardly necessary to say that all the surgical appliances always supplemented by the most continuous and intensive medical treatment, notably by autogenous vaccines and by anti-streptococcus and anti-colon sera. It is important to note that since the introduction of this specific serum, all other technical conditions remaining as before, the mortality in the last 77 colectomies has been 12% as compared with 30% in the previous 100. This has been shown to be due to a striking decrease in the failures of union at the point of lateral anastomosis and also of ulcerations and perforations near the anastomosis which formerly added to the mortality.

*Read at the Annual Meeting, November 21, 1921, of the New Hampshire Surgeon-General's Medical School, Hanover, N. H.

It is unwise to draw deductions from a small series, but our present view is that the reduction in mortality is closely associated with this serotherapy. If maintained, this rate is no higher than what is current for certain well-established surgical procedures, and may ultimately justify the occasional employment of total colectomy among the pre-insane if the therapeutic results continue to be favorable.

The most careful pre-operative studies in differential diagnosis are, of course, just as necessary among psychotics as in the case of any patient suspected of having an abdominal lesion. A very important point, and one sure to carry special weight with surgeons, is that *the psychosis should be disregarded and the cause for it sought*. In the light of modern studies the psychosis is a terminal condition, a "symptom" as Dr. Work has said, and as we consider it—the end-result of a long-continued chronic infection. Just because a patient presents certain psychogenic symptoms, there is no possible excuse for the denial of a thorough medical survey. The open-minded thoroughness with which this work is done upon all new cases admitted to the State Hospital at Trenton is the simple explanation of the satisfactory results obtained. I cannot speak for the rest of the profession, but as a surgeon I was brought up to consider the insane as creatures apart from the rest of us, a position due, partly, as Dr. Cotton says, to the "hereditary fear of the insane," partly to the fact that being conversed in the involved nomenclature of psychiatry, it seemed a forbidden and uninviting field to the surgical outsider. Now, this has been changed; retrospect gives way to prospect and we have come to look upon the psychosis simply as an incident in a melio-surgical syndrome requiring usually only the ordinary modern methods for its solution. Is there any justification for the existing practice of looking a patient up without a physical survey, because of a psychosis which can so often be shown to be of toxic origin?

This is not meant in any spirit of hostile criticism of the psychiatrists, but rather of the unsatisfactory general attitude of the profession, which has set the psychiatrist apart from the rest of us, denying him the aid which he should receive in the proper diagnosis and treatment of his patients. It is thus a brief for the application of the group practice of medicine to psychiatry.

As a result of the diagnostic survey of the patients admitted to the State Hospital at Trenton, the average being 75 per month, one-half as stated are classed as toxic psychotics. This represents the residue, after deducting the arterio-sclerotics, the senile, and the paretics. Of the toxic psychotics, 20 per cent. are proven by history, by X-ray and by physical examination to have well defined lesions of the lower gastrointestinal tract. Since a large percentage of these patients come as voluntary commitments from intelligent families it is evident that, except

among the most indigent and ignorant, there has been a concerted though futile attempt on the part of competent family physicians, to treat these people medically, and occasionally surgically. Satterlee has shown 25 per cent. of previous appendectomies in a large group of non-institutional chronic intestinal invalids. Most of them have been "nervous invalids" for years. It convinces one that there is no neurosis, neurasthenia, psychosis, without physical cause. In the great majority of cases there is a history of obstinate and persistent constipation; many of the patients having had to take purgatives since infancy. It is an actual fact that a startling number of them have *never* had a normal movement of the bowels. On the other hand a small but definite number have presented the clinical evidence of diarrhoea, this being alternated frequently by attacks of constipation, important evidence of gastro-intestinal pathology.

At the time of undertaking these researches into the possible relationships of the so-called functional psychosis, to gastro-intestinal pathology, three years ago, the surgical work was influenced by the then prevalent ideas of "stasis" and "drainage." It was, therefore, natural that certain minor procedures, such as colostomy, ileostomy or even appendicostomy, might be considered of assistance in controlling the psychosis. It was soon found, however, that, if helpful at all, the results were transitory, due, as afterward discovered, to the fact that the bowel wall itself had, in these advanced cases, become established as a well defined and extremely potent local focus of infection. Resection of the right side therefore became the established practice. Somewhat later the sigmoid was resected, either in conjunction with the right-sided work, or alone, and in all cases, at this time, the internal and external sphincters were cut radially and posteriorly. This simple procedure should be mentioned, in passing, as being indicated, in our opinion, in all cases of partial resection. It is often important to utilize it as a preliminary procedure, because in a small percentage of cases, evidently where the bowel itself has not undergone severe segmental infection, it has served a very valuable purpose in arresting the constipation and improving the psychosis. It should never be done, however, if the perineum is torn, or if total colectomy may have to be practiced later on, as it probably throws control of the bowel functions upon sphincters established in the upper ileum or lower sigmoid, which might be impaired by the more radical procedure.

On reviewing this work it was decided about a year ago that in cases showing evidence of both right and left-sided involvement it would be far better to practice total colectomy. This has now been done twenty-nine times, and it is evident that when indicated it is the operation of choice. In cases where no improvement occurred after removal of the right side, abundant pathology was often found on the left side, showing the

difficulty of determining the condition of the colon wall even with the belly open.

Constipation, or "stasis" is unquestionably not the primary consideration in discussing intestinal toxemia; it is a result rather than a cause. This follows very definitely upon a consideration of the source of the toxemia which originates in the bowel. It may arise from one or all of three sources, first, from the putrefactive products of food proteins; second, from an alteration in the normal secretions of the intestinal epithelium itself, as demonstrated in our animal experiments on intestinal obstruction and, as shown in the final paper by Eisberg in the December issue of the *Annals of Surgery*; third, and perhaps most important, from direct bacterial invasion of the bowel wall itself. These laboratory findings are supported clinically. In some cases resection of the damaged bowel segment was not followed by disappearance or arrest of the mental symptoms until the administration of an anti-streptococcus and anti-colon serum, and *vice versa*, the administration of an anti-serum alone did not produce any beneficial results; and recovery followed only upon resection. This is presumptive evidence of variation in the type and origin of the toxemia. In the more favorable cases, where the infection was limited to a small area in the bowel, all of which was resected, recovery often followed without the administration of serum. It is convenient and necessary to have a framework upon which to build and we have found these premises useful as such.

Damage to the bowel, primarily to the mucosa, is doubtless essential for the absorption of these toxins. This is often caused by bands arising either from devascularization and contracture of right, or left-sided pericolic membranes or from right or left omental bands becoming adherent to the abdominal gutters. The delicate epithelium of the bowel is evidently easily injured by such bands, and there is much evidence accumulating to show that the most important result of such injury is the breaking down of the bacterio-toxic barrier which the epithelium normally interposes between the lumen of the bowel and the body cavity. The gut segment so damaged, thereafter constitutes a local focus of infection, the importance of which cannot be over-estimated. This also, undoubtedly, explains the unfortunate experience common to all surgeons that a separation or breaking down of the intra-abdominal adhesions gives only transient improvement. The adhesions reform because the local focus causing them has not been removed. Traumatism has little or no bearing upon the condition.

"Stasis" or constipation is only a symptom of the underlying pathology, and, as such, is probably a protective effort. In the complex relationship of structure to function no change can be made in either without resulting disturbance of the delicate balance which we have come to look upon as normal health. Because of our

failure to appreciate this law we have in the past too often attempted to cure the patient by interfering with symptoms, the protective value of which was masked by secondary symptoms of purely minor importance. I refer to the meddling treatment of fever, of increased blood pressure, of vomiting, of diarrhoea, of disability, and primarily of *pain*, without seeking an interpretation as to their value and their cause. Though less easy to comprehend, it is highly probable that constipation is in some way a protective effort on the part of nature. At all events, Satterlee has demonstrated that the most extreme forms of chronic colonic toxemia may co-exist with normality of bowel function, or even with diarrhoea; so we must get away from the idea of "stasis" as a basic factor and substitute for it the broader viewpoint that the damaged, leaking bowel segment is the causative lesion, the "stasis" being a relatively unimportant symptom. As a result of the "stasis," however, undoubtedly the toxic products are more easily absorbed, and probably additional ones are generated. It is an evil part of a protective cycle.

The best index of the condition of the bowel and its epithelium is the presence or absence of the enlarged mesenteric glands opposite it. The integrity of the bowel epithelium is as important to the health of the patient as is that of the kidney.

Gastro-intestinal invalidism, with its multitude of correlated symptoms, all of which are protective but which must also be deleterious because of interference with the above noted law, is the result, in plain language, of the leakage through a damaged epithelium of bacteria and their toxins, together with unidentified metabolic toxins of obstruction and often of protein food derivatives, into the vascular and lymphatic systems. Depending probably upon the specificity of these lethal agents of bacterial origin, different groups of tissue are attacked with resulting dispersion of symptomatology.

The hypothesis of specificity among pathogenic bacteria and their toxins has met with general acceptance as regards the heart, kidney, joints, etc.; but as yet, it remains to be proven for the brain, ganglia and nerves. Difficult of direct bacteriological proof, it is encouraging that much clinical evidence is accumulating regarding this moot point. For the laboratory is not the only source of medical truths. More than one thousand patients, at the Trenton State Hospital have been treated during the last three years for the relief of the toxic psychoses and discharged from the hospital. Treatment has consisted in an attempt to detoxicate through the elimination of focal infections by standard methods. Forty-three have been returned to the hospital, and of this number twenty left shortly after removal of local foci which had been accidentally overlooked. All of these patients had presented on admission laboratory and clinical evidence of the presence of strep-

toëcoccic and colon bacillus, local foci of infection in conjunction with a psychosis. As similar foci are well known to exist among chronic invalids at large without a psychosis it seems probable that as physical observations upon the psychotic type increase, it will be conceded that, although there is no morphological or functional difference as yet discernible between the focal bacterial units of the arthritic group on the one hand, the toxic psychotic group on the other hand, ultimately there will be found to exist as definite a specificity in the latter group as is now generally accepted in the former. The entire question of specificity though intimately related to Cotton's theory of the causation of the so-called "functional" psychoses, is by no means a *sine qua non* for its general acceptance but rather an interesting side problem, which can be studied along with the general problem of the insane, and the even greater problem of gastro-intestinal invalidism.

SUMMARY

1. The colon, in whole or in part, is occasionally an important local focus which may stand in causative relationship to the toxic psychoses.

2. The toxic psychotic patient should be intensively studied by the medical group method; particularly for the discovery and removal of local foci of infection; and treatment should be both surgical and medical.

3. The toxic psychoses even when well-established can be arrested in over 65 per cent. of cases if the proper surgical and medical work is done before deterioration has rendered the condition incurable. Prevention of the psychosis will follow early recognition and eradication of the toxemia.

4. Intestinal toxemia is a triad originating in food proteins, in perversion of the intestinal epithelium, in streptococcus and B. coli invasion of the bowel wall,—one or all. In 20 per cent. of the toxic psychotics it stands in important causative relation to the mental symptoms.

9 East 40th Street.

A PLEA FOR ROUTINE EXAMINATION UPON THE OPERATING TABLE UNDER ANAESTHESIA AS A PRELIMINARY TO ABDOMINAL OPERATIONS.*

By JOHN W. KEEFE, M.D., F.A.C.S., PROVIDENCE, R. I.
Fellow, American College of Surgeons.

WHOSOEVER may have observed the modern trend to subdivide the practice of medicine into numerous specialties must admit that it has many advantages; yet, such a thoughtful ob-

*Read at the Annual Meeting of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons at St. Louis, September 21, 1921.

server must admit also that it is attended with a number of evils.

We Americans the world over are characterized as hustlers, we appear always to be in a hurry. The mad rush for quantity production in the business world, which, we must acknowledge, has developed efficient and large business organizations, should not be applied to the care of the sick.

It was but natural that the methods of practicing medicine should be molded and modified by our contact with this prevailing spirit in business.

Not only is it desirable, but vitally essential that we allow sentiment to enter into the practice of physic, because it is impossible to eliminate the human element in the care of the injured and the ill.

If we but take the hospitals of this country, by and large, as organized to-day, we shall note the small amount of time the attending surgeon devotes to his examination and to the acquisition of personal knowledge of the patient upon whom he is about to operate.

How much consideration does he give to the diagnosis of the ailment and how much to the selection of the most preferable operative procedure to be employed?

One may take at random a large clinic in any sizable city and if the whole truth were known, we will find that the history was taken and the urine, blood and physical examinations were made by different persons, and, moreover, the results of their work were hastily correlated by some assistant, or house surgeon.

Many times we have noted that the surgeon saw his patient for the first time when anaesthetized and ready for operation. He then had the history read and the probable diagnosis arrived at by his assistants.

Even then he seldom takes the time to make a careful physical examination, including bimanual, vaginal and rectal examinations, because it is time consuming; and yet how often the lack of this study of the case has led the surgeon far afield, and, at times, with disastrous results to his patient.

I have in mind an operation witnessed a short time since, where a very competent surgeon had a patient on the table with a diagnosis made for him of carcinoma of the pelvic colon. The x-ray plate that was exhibited showed a filling defect which the radiologist said was due in all probability to a malignant growth. The operator described the method of resection of the intestine, which he would in all likelihood adopt.

If he had devoted a few minutes only to a combined abdominal, vaginal and rectal examination, he would have learned that he was dealing with a uterus with several fibroid tumors, together with pus tubes, and would have had a clearer idea of how to attack the pathology present, through the abdominal incision.

He was so certain of finding a malignant growth that he ruptured a pus tube and thereby spread the pus among the coils of intestine and for a time was at a loss to realize the exact condition of affairs and consequently he did a rather inferior operation.

We find in another patient operated upon by an equally eminent surgeon that the roentgenologist made a diagnosis of diaphragmatic hernia; the plate, however, was not very clear, as the barium shadow of the intestine interfered with a distinct outline of the left diaphragm.

A competent internist, obsessed with the diagnosis made by the radiologist, thought he heard succussion sounds and a tympanitic note in the chest.

When the surgeon excised eight inches of a rib and opened the pleural cavity, he found there was no evidence, by ocular inspection, of an opening in the diaphragm; hence there was no subdiaphragmatic hernia.

If the surgeon had not depended in so large a measure upon his associates and had examined the chest himself by auscultation and percussion, and had pointed out to the roentgenologist that it would be desirable to obtain a clearer radiograph, I doubt if he would have fallen into the error of performing this unnecessary operation.

In another city, a surgeon with a national reputation, well deserved, opened the abdomen of a girl sixteen years old, because the house surgeon had made a diagnosis of gastric ulcer, which diagnosis was based solely upon the history of the patient and the examination of the stomach contents.

A thorough exploration of the abdominal viscera revealed nothing abnormal. Is it not fair to presume that this child will suffer from abdominal disturbances?

Why should not the surgeon possess a more definite individual knowledge of each and every case, and while evaluating, place less dependence upon the findings of subordinates?

Apparently the reason why the above mentioned time-consuming practice is not followed more closely is the tendency of modern surgery toward quantity production.

One who has not been in the habit of making routine examinations of the abdominal contents with the patient anaesthetized, will be surprised to find the frequency with which his diagnosis can be improved upon or clarified.

It is my custom to have the patient placed in the lithotomy position, the thighs flexed upon the body and the feet placed in stirrups or held by assistants. The pubes, vulva and vagina are scrubbed with liquid soap and water and flushed with a one to two thousand bichloride of mercury solution.

The patient is then catheterized, as it has been found, occasionally, that the nurse may have omitted to have the patient pass urine just previous to going to the operating room and also it is a well known fact that some patients se-

crete a large amount of urine during anaesthesia.

Just how many times the bladder has been opened needlessly, no one will ever know, but this error is always due to the failure of the surgeon to definitely realize that the bladder was distended.

The abdomen is now carefully examined by palpation and percussion, followed by a combined vaginal, abdominal and rectal-abdominal palpation.

The whole procedure may take five minutes, but it is time well expended, as the operator has then a clear idea of the size, location, mobility and characteristics of a growth if present, and if a growth is to be removed, can then decide whether the vaginal or abdominal route is the more preferable.

He may even by these methods of examination conclude that medical treatment, rather than surgical, would be most helpful to the patient.

Routine examination under anaesthesia, preliminary to abdominal operations I cannot advocate too vigorously.

Make a practice of these procedures in every case and judge for yourself whether you do not find them advantageous and beneficial to your patient during the operation.

Unquestionably, the division of labor has numerous advantages and the concentration of effort upon one subject has made for progress in medicine.

When you consider the men of the past who have advanced our knowledge of the various specialties, you will find that most of them were general practitioners of medicine and undertook the intensive study of some specialty, only after a prolonged experience in the treatment of the sick. This valuable knowledge as being of the very fabric of their minds they daily employed when practising in their limited field of work.

We find that the tendency of the day is for one to become a specialist with very little effort, study and time to perfect himself. A few months at a post graduate school and that, too, with scarcely any knowledge of the general practice of medicine, outside of their meagre hospital experience, is the extent of this inadequate training.

The result of such insufficient preparation we observe in the frequency with which the important lesion from which the patient is suffering is overlooked, as the narrow vision of the specialist prevents him from seeing beyond his contracted field.

Are we not over-specializing? As thoughtful observers, should we not ever look upon the complex human body as a single entity, with its multifarious structures, brain, nerves, heart, blood-vessels, glands, teeth, etc., so carefully adjusted and attuned to work in harmony, one with the other?

A few men gifted with foresight, realizing the necessity of taking advantage of modern scientific work and desirous of utilizing the labor, experiences and opinions of others, have established groups of medical men, trained in the various specialties, to work together.

In order to have a group function properly, its members must first of all be men of character, who are willing to work in harmony with one another, and who are willing to give of themselves unselfishly for the advancement of the science of medicine and the welfare of their patients.

A daily conference of the group should be held and the opinions of the members discussed and analyzed. The member with the largest experience and most logical mind should correlate all of the information, make the diagnosis and outline the treatment and advice to be given to the patient.

This type of group can and will help to advance the progress of medicine in this country; but the general practitioner should and shall always find valuable work to accomplish.

There are groups of medical men to-day who merely have offices in the same building and agree to refer patients from one member of the group to another.

These bodies, not founded fundamentally for the welfare of the patient, will prove to be a detriment to the advance of medicine in the community wherein they practise.

The public to-day is so impressed with the word specialist that many no longer consult the good old family doctor, but select this or that specialist, even the x-ray specialist, for a diagnosis. Is this the most desirable procedure on their part? Decidedly it is not. While radiography many times gives us very valuable information, how often do we, on the other hand, find the results of this study misleading?

When shall we have definitely impressed upon our minds that the x-ray plate reveals to us a shadow superimposed upon shadows and that these shadows may be interpreted with great difficulty or not at all? Should we not employ the x-ray only as an adjunct to diagnosis?

The surgeon who is to operate, should himself first make a careful examination and study of the complete history of the patient and then evaluate with the radiologist his findings.

But someone will say, how is the busy surgeon to find the time for all this labor? I would answer, that first and foremost he should have the welfare of his patient at heart and that it would be better for his clientele if he did fewer operations in a day, paid more attention to a thorough study of the individual, his personal characteristics and his ailments, more to the performance of a skillful operation and less to the work of subordinates, who often unintentionally give him misleading information.

In contrast to the hurry which infects us all to-day, let us pause to reflect upon the leisurely

work of one of our predecessors; allow me, for a moment, to dwell upon the activities of one of the pioneers in gynecology and abdominal surgery, namely, Dr. Gilman Kimball, of Lowell, Massachusetts.

A glance at his portrait reveals the spirit and character of the man. The massive head, the broad brow, the keen eye, the thin and compressed lips and the determined expression of his countenance, all go to prove that he was a man of power, strongly impressed with the courage of his convictions.

Born in the obscure village of New Chester, New Hampshire, in 1804, he ultimately attained an international reputation for his skill in the removal of ovarian tumors. His father was a merchant in the village, and though probably not rich, he yet stamped upon his son a quality, invaluable at any time, which we know as character.

The subject of our sketch studied with the elder Doctor Edward Reynolds of Boston and received his degree of Doctor of Medicine from Dartmouth in 1826.

He practised in Chicopee, Massachusetts, for two years and then spent a year in study at Paris, where he was fortunate in having an opportunity at the Hotel Dieu to follow the instructions of Baron Dupeyren, who was considered the foremost teacher of surgery in Europe. It was at this period that he acquired confidence in himself and inspiration from this master mind which later he was to use to advantage in his pioneer work in this country.

We find him in 1830 settled in Lowell, Massachusetts, in a town of less than twenty thousand inhabitants, where he practised until his death, which occurred in 1892. During 1842 he succeeded Dr. Willard Parker as professor of surgery at the medical college at Woodstock, Vermont, and one year later he occupied a similar position at the Berkshire Medical Institute at Pittsfield, Massachusetts.

Surgery has been the loser by the passing away of these peripatetic teachers of medicine, as there are many factors in favor of this ancient custom.

It is possible that we may again, some day, revert to this method of inspiring young men by having the masters in medicine lecture as exchange professors in the various universities.

During the Civil War, Doctor Kimball superintended the organization of the first military hospitals established for the sick and wounded of the Union Army and, after a year of service, he was retired on account of his having contracted malaria.

As early as 1855 he operated for the removal of an ovarian tumor and gained a world-wide reputation for the skill which he achieved in this type of surgery.

We must remember that at this period the operation was considered by many to be unjustifiable.

The pathway of Doctor Kimball in his advocacy of the removal of ovarian tumors was not strewn with roses, as we may note in an article published in the *BOSTON MEDICAL AND SURGICAL JOURNAL* Sept. 22, 1864, when the editor quotes from the *American Medical Times*, as follows:

"I may further urge in my own behalf as well as that of my surgical brethren generally;

That the diagnosis in the majority of cases of ovarian disease is very obscure and that the prognosis is to the same extent doubtful, if not unfavorable.

That many females carry these tumors through a long life with comparatively little inconvenience, that in many cases they actually diminish in size, while the inconveniences attending them often nearly disappear.

That the most favorable statistics show that nothing is gained on the whole as regards the prolongation of life by the operation, for it is found that taking an equal number of females affected with ovarian tumors of equal ages and under as nearly as possible similar circumstances, the average duration of life will be greater in those on whom the operation has not been performed, than in those who have submitted to it, so that statistics in fact condemn the operation as unjustifiable.

In all the other great operations the surgeon has no misgivings; he is laid as it were under duress, as Prof. Meigs would say, to operate if circumstances required and he has no severe qualms of conscience should the case prove afterwards fatal.

Far otherwise, however, must it be with every properly constituted mind, when a fatal result attends an operation regarded as wholly unjustifiable by the highest authorities in surgery and by nine-tenths of the profession generally.

From what has been offered, it may safely and justly be inferred that our principal surgeons do not envy the professional reputation acquired by the operation in question; they do themselves honor by showing that they have studied ethics in a wider school, and that they prefer peace of mind and a good conscience, to transient notoriety and pecuniary rewards."

On January 24, 1864, Doctor Kimball calls attention to the *BOSTON MEDICAL AND SURGICAL JOURNAL* in which appeared a quotation of Doctor Warren which said that he could not recall a single instance in Boston of a fortunate termination of this operation, namely, removal of an ovarian tumor.

Doctor Kimball points out that his first three cases operated upon in Boston, terminated successfully, and that the fourth case an unsuccessful one, he had reported the previous December.

He was called as a consultant and operated throughout New England and had the happy privilege of living long enough to see the prejudices and opposition to this operation disappear

and to receive the approbation of surgeons both at home and abroad.

I am indebted to Doctor John W. Mitchell, late of Providence, for the following report of a case for the removal of an ovarian tumor; a large unilocular cyst, wherein he had assisted Doctor Kimball at an operation, which took place in a farm house located several miles from Providence.

Doctor Kimball arrived two days before the day set for the operation, and lived at the farm house where he could examine his patient, observe her general condition, and carry out the preliminary medical treatment and make the necessary preparations for the operation.

The kitchen table served as an operating table and the wash boiler provided an abundance of sterile water. The instruments were washed in hot water, dried and placed upon a clean towel. The doctors scrubbed their hands and forearms with soap and water. When the patient was etherized, her abdomen was washed with soap and water and clean towels were placed about the field of operation.

Doctor Kimball then made an incision about four inches long between the umbilicus and pubes. The cyst, which presented in the wound, was pierced with a large trocar, and after a gallon of its contents was removed, the cyst was drawn from the abdominal cavity and the pedicle transfixed and ligated with double stout silk. The tumor was then severed distal to the ligature and the stump of the pedicle and the ends of the ligatures were fixed in the lower angle of the wound.

The wound was closed with interrupted silk sutures which included all the abdominal layers.

The dressing consisted of the application of lint, adhesive plaster and a cotton cloth binder.

Morphia grains 1/3 was administered and repeated at intervals. Liquid nourishment and some alcoholic stimulant, usually rum, was given early and often. A rectal tube was employed to relieve the patient of flatus and enemata also assisted in the recovery. The silk ligatures came away about the seventh day, and the patient made an excellent recovery. The wound healed about the fourth week.

Doctor Kimball remained at the house of his patient for two days following the operation and left when he considered that she was progressing favorably, and gave to Doctor Mitchell the after care of the case.

Doctor Kimball was possessed of a logical mind and honesty of purpose, always firm in his convictions when confident that he was right. He contributed in a large measure to the progress of surgery, both in this country and abroad.

In conclusion, I would emphasize the value of routine examinations under anaesthesia upon the operating table, preliminary to abdominal operations;

The necessity of a period to be spent in the general practice of medicine previous to becoming a specialist;

That we consider the human body as a moving equilibrium; in brief, as a living unitary organism;

The desirability of the masters in medicine becoming peripatetic and lecturing as exchange professors in the various universities;

And above all, the importance of remembering that careful work demands time and personal attention to those multifarious details which modern medicine requires.

TWO UNUSUAL CASES OF INJURY TO THE TIBIAL TUBERCLE

By JAMES WARREN SEVER, M.D., BOSTON.

The purpose of this paper is to report two unusual cases of injury to the tibial tubercle—one acute, and one of many years' duration.

In spite of the fact that since Osgood¹ and Schlatter² in separate articles in 1903 called attention to this bony protuberance which serves as a point of attachment of the patella tendon, its liability to injury from direct and indirect violence has been frequently overlooked and the symptoms of such trauma misinterpreted.

Since then a number of authors have reported one or more cases of injury to this epiphysis, and others have shown by X-rays that an accurate diagnosis of separation of this bony beak can be determined only by a careful comparison of both tibiae. Many cases have been reported, which demonstrate by the X-rays shown, that a normal epiphysis has been mistaken for an abnormal or separated one. The best way to avoid such an error is always to compare the two sides.

Pain, tenderness, and swelling over the tibial tubercle do not always mean a separation of the epiphysis, unless demonstrated by X-rays of both legs. Bursitis of the deep pretibial bursa (Lovett³), superficial bursitis, or housemaid's knee, may both simulate the condition, as well as an epiphyseal strain or slip, not however demonstrable by the X-rays.

The condition of ordinary strain of the epiphyseal line at this point is not infrequently met with, and under ordinary circumstances easily dealt with by strapping, or in the more persistent cases, by a ham splint. To my mind, operation on the tubercle for fixation of the epiphyseal beak to the crest of the tibia is unnecessary in the vast majority of cases, as a cure can be established quite as well in about the same length of time by non-operative methods. Bone grafting⁴ and pegging for this condition are meddlesome, and while they may require good operating, it is poor surgery. This applies to the ordinary and average run of cases.

If the normal development of the tibial beak is borne in mind, it will be remembered that it unites with the shaft of the tibia at about the 14th or 15th year, and is usually firmly united and continuous with it at about the 18th year. In the years before the 14th or 15th while the epiphyseal center is developing, and is surrounded by cartilage, many apparent lesions are shown by X-ray examination, such as evulsion, fractures, single and double centers of ossification, or no centers at all. With symptoms under these conditions it would be natural to interpret the X-ray as showing a lesion. Without symptoms the condition would be called normal and developmental. Hence, due care should be used.⁵

The two cases which follow are, however, out of the average run of cases, and both required operation for relief of their condition.



CASE 1. X-ray No. 1. January 12, 1920. One week after injury. Note complete separation of tibial beak with line of fracture extending into knee-joint.

Case I.—See X-ray Nos. 1—2—3.

This boy, age about 16, injured his left knee in the following manner in January, 1920: While running and about to "take off" for a running high jump, he felt something give in the knee, and he collapsed. He suffered great pain and the knee swelled a great deal. He was removed to a near-by hospital, and the leg put on a splint. I saw him the next day, at which time the leg was greatly swollen, the knee joint distended with fluid, evidently blood, and the skin ecchymotic. He was very tall and heavily muscled for his age.



CASE 1. X-ray No. 2. February, 1920. Four weeks after replacement and suture.



CASE 2. X-ray No. 4. August 2, 1921. Preoperative—note loose fragment of tibial tubercle—right knee.



CASE 1. X-ray No. 3. Normal right leg of same case for comparison.



CASE 2. X-ray No. 5. August 2, 1921. Left knee showing normal epiphysis.

The X-Ray showed what had happened. See X-ray No. 1. The act of jumping, with knee partially flexed, the muscles long and heavy, becoming suddenly forcibly contracted to lift his weight, proved too much for the tibial tubercle, which even at his age had apparently become firmly attached to the tibia. The tibial tubercle pulled off, the fracture extending into the knee joint. The tubercle remained at an angle of almost 35° to 40° to the tibia, and could be felt projecting under the skin. After ten days' rest in bed on a splint, and with an ice bag to the knee, he was operated on through a vertical incision over the epiphysis. The bony fragment was found projecting as shown in the X-ray, was easily pressed back into its bed and held in place by a heavy mattress suture of kangaroo tendon. He made an uninterrupted convalescence, and the X-ray (see X-ray No. 2) taken four weeks later shows the post-operative result. X-ray No. 3 shows the normal epiphysis of the other leg. Three months after operation his leg was practically normal, and he was back in school with normal function at the knee.

This case is rare, and Rhodes⁶ states that only nine other cases have been reported besides one which he reports, and shows an X-ray of, which, from the X-ray point of view, looks like a normal epiphysal beak.

Case II.—Man, age 22.

This individual, who was tall and well developed, gave a history of having injured his knee when about seven years of age. Ever since that time he has had trouble off and on with the knee. The condition recently has become more acute, especially as he is a runner and hurdler in college, and it has interfered with this type of activity a good deal.

He has had pain, disability, and swelling in the region of the tibial tubercle following any attempts to use the leg freely, and the condition and discomfort have been increasing recently. He came because of this disability and wanted relief.

The examination showed that the tubercle of the tibia on the affected side was much larger than that on the so-called normal side, but both were much more prominent than usual. There was distinct grating on motion felt over the tubercle on the affected side, accompanied by pain and discomfort.

The X-ray shows (see X-ray No. 4) that there had been a fragment of the tubercle separated at some time, and which was apparently adherent to the under side of the patella tendon. Any motion of the knee, therefore, in flexion or extension caused this fragment to rub up and down on the crest of the tibia and cause constant irritation.

This fragment was removed at operation, and was found to consist of bone adherent to the under side of the patella tendon. The patient made a perfect recovery and several months later was able to go back to running and hurd-

ling without any discomfort or return of his former symptoms.

In conclusion I would emphasize that the types of cases reported above are the only ones which really need operative procedures.

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ARTHROPLASTY OF THE ELBOW JOINT: A POINT OF VIEW.

By HAROLD C. BEAN, M.D., BOSTON

NUMEROUS reports have appeared in the current medical periodicals during the last decade and a half which, with very few exceptions, have decidedly favored this operation as a substitute for excision or ankylosis. In a review of these papers, and in an attempt to favor conservatism, allow me to present this résumé in the nature of a brief for discussion. Such a brief may read as follows:

Although, with few exceptions, favorable reports have been made by divers surgeons concerning arthroplasties of the elbow joint, and although this joint affords a unique site for experimentation, we must consider well the patient's anatomical, mental, social, occupational, and financial status before undertaking a procedure of which we can give no definite pre-operative assurance of success; such success being that end-result which, in the patient's opinion, is considered worth the pain, the time, and the finances necessary for that end-result.

This review is not meant to be a treatise on the operative procedure as much as a viewpoint in the discussion of the end-results of this particular arthroplasty and of other arthroplasties in so far as they are allied. Beginning with the first year of this century a large number of reports were available, the majority of which claimed favorable end-results; that is, useful arms. In these cases the immediate cause of the ankylosis did not seem to contra-indicate an attempt at arthroplasty, although tuberculosis which had not been quiescent for several years or which gave evidence of any great amount of bone destruction was not considered a favorable site for such an operation. Several have been done with a few good results; very few, in fact, in comparison with the total number reported from all causes. Among these causes were mentioned a great number of gonorrheal arthritides, almost an equal size collection of cases from infectious processes, mono- and polyarthritides to a less extent, and some ankyloses caused by fractures into the joint which have failed to function after reposition. The best results were obtained from the last group, while bony ankylosis offered a better prognosis than a fibrous fixation.

Without doubt the elbow articulation is a favorable site for attempt at arthroplasties, for no matter what the end-result may be, reankylosis, little or free stable motion, or unstable motion,—sepsis and osteomyelitis excepted—there remains, at least an equally serviceable arm. It is indeed an experimentation, because even though arthroplasties of some kind have been performed since Verneriel first used a flap of muscle and fascia in 1860, each individual case has been necessarily a matter of supposition as to just how much improvement in function one will gain over nature's method of splinting.

In general, the same factors which determine the advisability of operation upon other joints hold good in this particular operation. In the first place the age at which such a procedure can best be undertaken is universally and obviously described as early adult life. Before the age of eighteen there is grave danger of interfering with the growth of the epiphysis, particularly in the removal of too much bone during the attempt to reform the joint surfaces. If very early in childhood, the normal growth of the bones thereafter will decrease the joint space and may cause reankylosis. If performed in late adult life the human tendency to bone formation and proliferation may upset all results obtained by operation. Tubby fixes his age limits at eighteen and thirty, but Putti allows a longer period, from twenty to fifty, this difference in limits being due perhaps to effects of race or climate on old age changes in bones and joints.

The general condition of the patient as well as the local manifestations must be dealt with in considering arthroplasties. A thin arm and elbow lacking the nutritional advantages of a robust individual is not a particularly good subject for a transplantation or fascia flap. However, Dr. Putti remarks upon the remarkably quick recovery of function in muscles which have been atrophied from disuse for several years. Whether such a phenomenon is the usual occurrence in this and allied conditions I am not prepared to say.

The intelligence of the individual, both in relation to his own exertions and his co-operation with the surgeon, must be of a high order,—at least, well above the ordinary; for in this operation, all other procedures being equal, the success is measured by the patient's own endeavors governed by his intelligence and persistency.

Some occupations are better served by an ankylosed elbow, some by a flail joint, rarely by a functioning joint. The reverse result may mean change of trade and even failure; whereas, if operation had not been attempted, there would have remained a useful member of society. Such tragedies must be considered carefully before proceeding with the operation and the long period of convalescence.

The individual concerned must be informed of the period of inactivity from work which is

necessary in all these cases, and his wishes granted. Even then his financial condition should be carefully gauged, for his enthusiasm may mask his better judgment or he may not be able to grasp the extent of his period of inactivity.

Various methods have been used to obtain mobility in the elbow joint. Foreign materials such as ivory pegs, magnesium sheets, wood, celluloid, gutta percha, and a mixture of yellow wax and lanolin have been tried at various periods with varying, and sometimes unfortunate, results. The most unfortunate experience was that of Hoffa, in 1906. He interposed a sheet of magnesium between the bones of the arm, which sheet created a gas and formed a persistent fistula. It became necessary to remove the sheet before the fistula would close.

Since 1900 the most common materials which have been used have been autogenous, that is cartilage, muscle, fat and fascia, the latter being the most universally accepted substance used at present. A few men have used animal membrane, chromatized or impregnated with silver, but their results have been generally poor. Baer himself obtained such poor results that he was led to believe that the elbow was the poorest joint as a site for arthroplasties. Allison and Brooks reported that the reaction in the joint following the use of chromatized membrane was so intense that adhesions between the granulating surfaces formed before the membrane had disintegrated.

Of the later materials used in this operation we have muscle, fat, and fascia flaps or transplants. It is conceded now that flaps have no advantages over free transplantations. Nelaton, Delbert, Berger and Kirmisson used flaps obtained from one of the various arm or forearm muscles; Schanz, and Hoffa, in addition to his unfortunate use of magnesium in one case, used fat flaps; while Murphy, Ritter, Whitman, Pourpoin, Putti, Turner, Ashhurst, Kerr, Brown, Ryerson, and many others have used with success pedunculated or free fascia. There does not appear to be any great differences obtained whether the fascia is cleared of all fat or not.

Again, several methods have been employed in exposing the joint in order to insert the material mentioned above. Ashhurst in 1915 reported five cases in which he made an incision along the external supracondylar ridge and detached the external condyle with an osteotome. After inserting his pedunculated flap he replaced the external condyle by means of a Lambotte's self-boring screw.

Ryerson uses a long posterior incision, avoiding the olecranon. He cuts the biceps tendon and removes a thin shell of bone from the external condyle upon which is attached the extensor muscles; also, a similar shell is removed from the internal condyle and the joint is dislocated.

It is not for me to criticize these methods, but it seems to me that the easiest and simplest ap-

proach is the best. Dr. W. R. MacAusland describes in detail a procedure which appears to fulfill these requirements.

A semicircular incision is made from the external to the internal condyle and a two inch flap is turned up. The ulnar nerve is found, dissected from its sheath and retracted mesially. A transverse incision is made extending through the periosteum at the level of the base of the olecranon. The olecranon is sawed through and with the flaps is turned back. The joint is then broken or sawed through and, after the capsule, fascia, and ligaments are dissected free, the lower end of the humerus is dislocated and brought into the wound. The edges are rounded off by a rongeur and a new trochlear surface is formed by the use of a small rasp. Next, a piece is removed from this surface corresponding to the olecranon fossa.

To insure good function the joint surfaces are fitted accurately before the fascia is applied. When the surfaces are completed a flap of fascia lata, freed of all fat and about six by five inches, is inserted over the condyles and is attached anteriorly to the capsule and posteriorly to the periosteum of the lower end of the shaft or the humerus by interrupted catgut sutures. Catgut is then wound twice loosely around the shaft just below the line of sutures.

The joint surfaces are then placed in apposition and the olecranon, from the joint side of which some bone has been removed, is held in place by a kangaroo tendon suture inserted through holes drilled in the olecranon and shaft of the ulna. The wound is then closed in layers, and, after a dry sterile dressing has been applied, the arm is encased in plaster in flexion beyond a right angle.

The only objection which can be raised to this method of approach lies in the question as to whether the arm can be safely placed in flexion after approximating the olecranon with kangaroo tendon. It seems like a confession of lack of faith in the operation not to be able to fix the arm in extension after operation, that is, as if the operator looked ahead with uncertainty to the period of manipulation and, therefore, left the arm in a favorable position for reankylosis if it should form.

Then comes the most important part of the operation, the after-treatment, and this varies somewhat with the whims of the operator. In general, passive and active motion, both governed definitely by the feeling of the patient, are begun in about ten days to two weeks. Later massage and then baking three or four times a week are instituted. Frequent X-rays should be taken in following along the bony changes within the joint. Manipulation under an anaesthetic may be necessary at times to regain lost motion, but if further operative means must be employed this should be delayed for three or four months.

Traction on the lower fragment is not con-

sidered necessary, due probably to the position of flexion in which the elbow is placed. I am unable to see why some traction in this position while the arm is in plaster would not prevent perhaps some of the post operative manipulations which are so often necessary, or why traction with the arm in extension would not be even better; thereby following out the method used by some in arthroplasties of the knee joint.

Professor Putti in his address in this city last spring reported an admirable paper, which I believe to be the last word in arthroplasty. In it he makes mention of an important feature of arthroplasties in general which bear repeating here. He says: "In the post-operative course of every arthroplasty there is a period which I should call *critical*; which sets in about a month after the operation, when the joint becomes somewhat painful and stiff. It is possible that during this period both the patient and surgeon have their doubts about the possibility of obtaining a good result. But in reality, there is no need for anxiety. The critical period is the usual consequence of the drying-up process of the joint and sometimes, also, of exaggerated exercise. The hot air treatment must be suspended for some days; after this the movements may be carefully and gradually resumed."

In mentioning prognosis with respect to arthroplasties he also states that it can only be judged after the lapse of a few years. In several reports it is noteworthy that the maximum range of motion after two or more years was, in some cases, markedly decreased from that of a few months to even a year. I believe the highest peak of proficiency in any given joint is reached when the patient is about to depart from under the control of the surgeon. There are few people who have the stamina to continue these routine exercises and treatments alone, in spite of many discouragements and lack of definite or appreciable improvements. In hospitals, charity patients soon lose their grip and drift away. In private practice such patients are hard to control. For this reason the subjects chosen for arthroplasty are necessarily few. If the field is broadened, admitting cases who, through lack of persistence, spoil the results of operation, we are bound to meet with reverses which will discourage us towards those few who are deserving of the attempt.

As in the practice of obstetrics, the Caesarean is essentially an operation of choice, so shall arthroplasty always remain to orthopedies. Again, may I say that arthroplasties should be to orthopedies as neurosurgical operations are to surgery,—superspecialties. It is only fair to the individual that, should he desire an arthroplasty, he should be assured of nearly one hundred per cent. chance for marked improvement. This cannot be done if the technique at operation is faulty, and every orthopedic surgeon cannot become trained in arthroplasties with a half dozen such cases a year.

I believe that orthopedies can be divided into three classes — mechanical, manipulative, and operative. We realize that some orthopedic surgeons are better prepared in one field than in the others. Arthroplasties belong strictly to the operative orthopedic surgeon, and, as such, should be left to his care.

As I have said above, after reading these reports I am not convinced as to the advisability of arthroplasty of the elbow joint. I agree with others that there are exceptions, the most important one being the arm which is ankylosed in extension. The papers which I read were reported by men who are undoubtedly excellent technicians in regard to operative technique. Their cases, in the majority, are successful. But will the results of all their successes overbalance the disappointments, even the crippling and loss of income, of the minority who were failures? Very often the man who needs an operation of this kind is just the one who fails miserably either from over-enthusiasm or extreme despondency because of the slow improvement. Several cases reported beginning with ankylosis in good position resulted in flail unstable joints.

Therefore, to conclude, may I say that because of the importance of the prerequisites, the length of time necessary for proper end-results, the lack of definite predictions as to the outcome, except in a very limited number of cases, I have yet to see the advantages of a few degrees of stable motion over an ankylosis in favorable flexion or an excision with a moderately flail joint.

THE NEED OF SANATORIUM TREATMENT OF TUBERCULOUS CHILDREN.*

By WALTER A. GRIFFIN, M.D., SHARON, MASS.

IN considering the need of sanatorium care of children, we are struck by two facts: one is the present paucity of accommodation as compared with accommodation for adults, and the other is the reported high rate of incidence of tuberculosis in children. Many writers have made mention of this latter point. Thus, Hamburger and Monti, in Vienna, are responsible for saying that 95 per cent. of children between the ages of twelve and thirteen years who came to autopsy showed infection with the tubercle bacillus. Garrahan¹ examined 1,214 children between the ages of two and sixteen and found 75 per cent., between the ages of fourteen and sixteen, probably affected with tubercle, although apparently all of these children appeared healthy. Brenner² examined 114 children and considered 65 per cent. positively tubercular, as revealed by x-ray examination. We have to take his further word, however, that only three of

these showed definite pulmonary signs. Hess³ found over one-third of the homes represented by children at the Preventorium in Farmingdale had infants under two years in close contact with tubercular parents. Ayres,⁴ in his book on "Open Air Schools," considered that out of 90,000 Boston school children, 4,489, or nearly 5 per cent., needed special open-air school and, as Kingsley⁵ says, "If 2 per cent. all over the country should need such care, 400,000 would need it." Finally, the annual report of the City of Chicago Municipal Tuberculosis Sanitarium makes mention in one place that there are more than 13,000 children under sixteen years of age registered in the tuberculosis dispensary, and 9,000 of this number have been diagnosed tuberculous. These figures are certainly startling and would indicate that almost any large city in the country could furnish enough children with tuberculosis to fill all of the existing tuberculosis sanatoria in the land. Further, if these observers are anyway near the truth in their deduction, there is a tremendous incidence of childhood tuberculosis. In fact, many have said it is probable that everyone in civilized communities is affected with tuberculosis by the age of twenty-five.

In compiling such statistics, it becomes necessary to know what signs and symptoms have been considered by these writers of sufficient weight to warrant the diagnosis. Even a question of doubt may arise as to the sureness of tuberculosis being present in a number of the investigations. We find that some of the observers rely on history alone, and, according to their reasoning, an infant in close relationship with a case of tuberculosis becomes necessarily tuberculous. Others are sure that they may detect by physical examination whether or no the tracheo-bronchial glands are enlarged, and if they are enlarged, by such findings they are considered to be tuberculous. Not all examiners will agree to this, nor to the assertion of other observers that x-ray examinations disclose such great numbers of tubercular glands within the chest. Those cases that are diagnosed by the aid of tuberculin are probably correct, but, unfortunately, any tuberculin reaction does not tell us whether an active disease condition is present or not, and, therefore, whether immediate treatment should be instituted. In fact, in many cases mention is made of the healthy appearance of the children so tested. Those cases that are found at autopsy have died, usually, of some intercurrent disease, and the focus of tuberculosis is usually limited to small, well-walled-off glands. Finally, we have always to bear in mind that infection with tuberculosis, and tubercular disease resulting from such infection, are two quite different things.

Unfortunately, there are many among the laity who are far from willing to admit, from the evidence cited, that the erection and costly maintenance of institutions for children are warranted,

*Read before the American Sanatorium Association at Middleton, Mass., December 3, 1921.

and amongst the profession there are many more "doubting Thomases." Therefore, even though we may be positive that the number of children who have tuberculosis is enormously large, and the number who show a potential possibility of becoming diseased is also very great, it will be very probable that an exceedingly minimal number will ever come to institutional care.

As a matter of fact, but few preventoria are available for the care of children. Up to within recent times all of the attention has been given to building institutions for the care of adults, and this is natural enough, since a diagnosis of tuberculosis in adult life is exceedingly easy compared with the diagnosis of the disease in childhood. It becomes necessary, then, to judge whether, in the first place, enough definite diagnoses can be made to warrant the providing of institutions for the care of children, or whether it is wise, after all, to wait for a definite diagnosis but to give the advantages of institutional care to those children who may have received a probable chance of infection in family life, or who may have certain signs and symptoms which might lead one to imagine they were already infected and, possibly, coming to a stage of disease. However, because of the exceedingly brilliant results which can be brought forward to help statistics of institutional care and to gratify both parents and physicians, there may be a danger of emphasizing too strongly this latter point and so to fill preventoria with children who are undernourished and anemic but who really could not be said to have definite tuberculosis. It is always gratifying to effect a cure, but to treat a patient for weeks, months or years, and finally to say condition merely "improved," is exceedingly dampening to one's enthusiasm. On the other hand, if it can be proved, by any method of diagnosis at present obtainable or afterwards to be devised, that these same undernourished, weakly children are definitely tubercular, and not merely potentially so, the establishment of preventoria would certainly have justified expenditure of whatever money and time may be necessary.

The problem may be viewed, however, from a more definite basis. We are likely to give much credence to the investigation of Chadwick, of this association, who found, in an examination of school children of Westfield, about 7 per cent. of them definitely tubercular. He does not state whether any of these have actual breaking-down of the lung parenchyma, but his experience has been so large as to warrant the surety that his statement of 7 per cent. is probably correct.

In my own experience, in a small way, with a tuberculosis clinic in Norwood,—a town of some 15,000 inhabitants and a school population of 2,600,—I have found in the last year four children with definite pulmonary signs sufficient in extent to require treatment. Two were sent to the state sanatorium and one other application is now in and the patient is awaiting a vacancy.

In the conduct of this clinic there has been but little co-operation from the district nurse, so that the chances are that there are others in the town who should have come for examination. Granting, however, that four cases with definite pulmonary signs are found each year among 2,600 children of school age, it is evident that there must be enough in the country at large to fill many hundreds of beds.

In Sharon, where I have been physician to the schools, I have found two children with definite pulmonary signs. This is in the proportion of two to 600—the total school population.

Of course, no proportions can be very well drawn from so few cases. Still, from even this small number of well-marked cases of pulmonary disease in childhood, it would be within the bounds of reason to imagine that at least one child in a thousand would be found to have definite tuberculosis, that is, definite pulmonary signs as manifested by dullness and râles. Rarely would there be any sputa for examination. If we might accept this somewhat hypothetical figure as a basis of computation, and if there are something like 20,000,000 school children in the country, there would be approximately 20,000 with definite pulmonary signs about whom there could be absolutely no question of diagnosis. This number would be sufficiently large to keep construction of institutions for their care going forward apace. If, in addition, all cases that might be considered fairly definitely infected were to be cared for institutionally, meaning by that not those showing symptoms of breaking down with disease, but those having possibly enlarged glands, a positive tuberculin reaction, and perhaps general poor nutrition or anemia, the task would certainly be stupendous.

Up to the present time there has been but little attention given to the problem of tuberculosis in childhood, but there are indications that a solution of it is beginning to be sought. Dr. Elliott, in an address given recently in Boston, drew a parallel between tuberculosis and such diseases as leprosy, malaria and yellow fever. He pointed out that we did not succeed in stamping out these diseases by treating individuals who were sick with them, but that we went at the source and eradicated the cause of these diseases. If, therefore, tuberculosis practically always starts in childhood, as we must admit it does by the evidence given us by competent observers, the way to eradicate is not by sanatorium care of adults but by preventive care in childhood.

Fortunately, many agencies have been set in operation in recent years to help this problem. For the weak, anemic and undernourished child there is the open-air school. This has not been instituted as widely as it deserves. Public opinion is an inert thing, but when it becomes clear that the benefits of open-air schools, or open-window schools, or schools with proper and efficient ventilation are so great, there will be such a demand for these things that school committees

will have to provide them. For younger children, the Grancher⁶ method, of farming out those that have probably become infected in the home, to families in the country, may be a means of saving many at a minimal cost. It might be doubted whether such a scheme would work in America, as it has in France, because of the differences in modes of living. Still, it is well worth trying. The scout idea, with its appeal to the great love of out-of-doors, and the Health Crusader movement are tremendous helps. They, doubtless, have walled off many an incipient infection.

There remain, however, a tremendous number who show at some time evidence of real disease, or else a condition that has been cited as "masked tuberculosis." For these, sanatorium care would be indicated, as careful supervision is needed day and night. I have tried to make it evident that the number needing such care is great. Two points, however, become plainly evident,—first, the paucity of accommodation that is available and, second, the fact that the present meager opportunities for treatment are not overcrowded.

I have visited, recently, three of our new county hospitals in Massachusetts, and in each one some provision had been set aside for the care of children, and in each one there were two or three children, but the beds so set aside were by no means filled.

At the Sharon Sanatorium we built a pavilion for children, which has now been in operation nearly four years, and at no time have we had it more than a third filled. Our present census shows that one-quarter of the beds are taken by children who have tuberculosis, and some few others are taken by those who are really beyond childhood age. It is partly because of this lack of clinical material at Sharon and in these other institutions that I considered bringing the question of sanatorium need before this Association; to provide accommodation for patients who do not accept this accommodation.

We have seen that those who have spent most time in the study of potential tuberculosis in children are exceedingly enthusiastic in their consideration of the need of institutional care. Dr. Chadwick's accommodation is always taken. Farmingdale, as far as I can find out, is also filled. Dr. Jabez Elliott, of Toronto, reports that the preventorium there is crowded and there is consideration of building additions. Other places of like nature are sending similar reports. It will be noted, however, that in all these cases where all beds are taken, that the patient has free, or practically free, care, expenses being met frequently by the city or state or by charity. At Westfield, for example, the price of board is \$4.00 per week, but if the patient is poor and cannot pay this, the town from which the patient comes is obliged to foot the bill. Dr. Elliott receives certain sums from cities from which the patients come and also from the province, so that his institution is

furnished something like \$14 per week by these various public agencies. It is different, however, when it becomes a question of paying \$15 or more per week for a child at a private institution, and I feel sure that many people who would without hesitation raise the money for an adult, for a prolonged stay at a sanatorium, would hesitate to spend as much for a child, not so much because they think less of the child, but because the evidence of disease which requires institutional care does not appear to them so great.

Moreover, the question of family relations seems more intimate in childhood. After adolescence, the younger members of the family are expected, often, to go away to boarding school or into business, but ordinarily it seems repugnant to families to allow children to be cared for by strangers, and if such care is given for a while and the patient makes the gains in health which are ordinarily made, the length of stay is often cut short in the face of any argument from the physician. Much of the time spent is thereby lost before the matter of health can be definitely clinched.

The matter comes, finally, to a question of education. We must teach that the need of institutional care is pressing, and that such care will give surprisingly brilliant results, not only for the immediate betterment of health of the child, but also because fewer cases of adult tuberculosis will occur if the tuberculosis of childhood is properly recognized and rightly treated. It will be necessary to educate not only the public, but the pediatricians and the profession at large, and we may rest assured that in America, at least, if the need of care of tubercular children is really made evident, institutions will be forthcoming. Evidently we have made but a beginning. Apparently, also, the future fight against tuberculosis will be centered about the care of the child. Let us, then, come into that fight with all our vigor, and place the treatment on the only sure, proper foundation for success, namely, at the source.

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RADIOTHERAPY IN CARCINOMA OF THE BREAST.*

BY GEORGE E. PFAHLER, M.D., PHILADELPHIA.

ABSTRACT.

RADIOTHERAPY in carcinoma of the breast can be divided into three parts:

1st. Ante-operative and post-operative treatment, and in this group of cases there should be a conference between the radiologist and

*Read before the Suffolk District Medical Society, January 25, 1922.

the surgeon before any treatment is begun, so that the best plan of treatment can be agreed upon. The ante-operative treatment is justified both by theory and by experimental investigations. This treatment will require approximately two weeks, at the end of which time the patient can be operated upon, and the post-operative treatment should begin approximately two weeks after the operation, and will require an additional two weeks' treatment. Unless the disease is very far advanced, the patient is then observed once a month, and later at longer intervals.

2nd. Recurrent and metastatic cases always give more unfavorable prognosis, but sometimes brilliant results can be obtained. The most thorough radiation possible should be given to the local recurrences and the local metastases, but the general area likely to be involved by metastases should be included in the treatment. In all primary operative and recurrent cases of cancer of the breast, a roentgenogram of the chest should be made. Radium can sometimes be used to advantage with the x-ray treatment in the control of recurrences and metastases.

3rd. Primary carcinoma of the breast has been studied mostly in the inoperable and more or less hopeless cases. Some of these have shown remarkable response to treatment, and occasionally an inoperable case can be made operable. In the primary cases, it is advisable to treat the patient over the carcinoma and the general glandular distribution thoroughly first with the x-rays and then introduce radium directly into the tumor masses at about the time that one would otherwise do an operation. Close coöperation between the surgeon and the radiologist will produce better results than can be obtained in any other way.

[NOTE: Reprints of the original paper may be secured by writing to Dr. G. E. Pfahler, 1321 Spruce St., Philadelphia.]

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PRE-OPERATIVE PREPARATION OF PATIENTS WITH OBSTRUCTIVE JAUNDICE.

WALTERS, W. (*Surg., Gynec., and Obstet.*, December, 1921), writes as follows:

Most patients with obstructive jaundice who die

after operation succumb from intra-abdominal hæmorrhage.

In most cases postoperative hæmorrhage occurs when the coagulation time of the venous blood is longer than nine minutes.

The coagulation time of the blood can be reduced greatly and the toxicity diminished in patients with obstructive jaundice by daily intravenous injections of five cubic centimeters of a 10% calcium chloride solution for a three-day period.

Carbohydrates and glucose prevent disintegration of body proteins when the patient is in a state of toxæmia.

Large quantities of water aid in eliminating toxic bile pigments and increase the body fluid.

It is self-evident that in operations for obstructive jaundice the various steps of the operation be carried out with the utmost gentleness, care being taken not to traumatize the tissues, especially of the liver, and for this reason, cholecystectomy should not be performed at the primary operation if it can be avoided.

[E. H. R.]

THE CURE OF DIABETES BY FASTING.

LABBE (*Annales de Médecine*, Vol. X, No. 1, 1921). If the patient is well nourished, it is comparatively easy to get a normal blood sugar, although the glycosuria persists. Blood sugar, rather than urine sugar, is the real indicator of cure. If the patient is poorly nourished, the fasting treatment is unsatisfactory and unsafe. Patients who have had prolonged fasting treatment develop a permanent state of acidosis and die in coma in spite of all treatment.

[E. M. D.]

THE TREATMENT OF LEPROSY.

DEMELLO (*La Presse Médicale*, October 29, 1921) mentions the brilliant results obtained in the treatment of leprosy by the use of the "gynocardate de soudrea." Early leprosy of the tubercular type responds the most readily to treatment. The patient may be treated at home and does not require hospital treatment. The author has also treated many patients by the oil of chaulmoogra, but withholds his results for a later article.

[E. M. D.]

TOTAL ABDOMINAL HYSTERECTOMY WITH DIRECT PERITONEAL DRAINAGE.

DARTIGUES (*La Presse Médicale*, October 29, 1921) urges drainage in all abdominal hysterectomies. He recognizes that there are certain cases in which a tendency to ooze is sufficient cause for all surgeons to drain. He thinks that there is sufficient manipulation of the peritoneum in all cases to cause a "postoperative ascites from mechanical irritation." These he drains by "direct peritoneal drainage."

The author gives several illustrations of the technique he uses. He advises the use of an "umbrella drain"—a rubber tube, perforated along its upper half, and containing a central umbrella self-retaining device. Several parallel, longitudinal incisions are made around the central part of the tube, each incision being about 1½ inches in length. These cause the central part of the tube to bulge, forming the umbrella. The tube protrudes from the abdominal wound and from the vagina and is withdrawn through the vagina.

[E. M. D.]

OBSERVATIONS UPON SURGERY OF THE LUNGS.

LLOYD, SAMUEL (*Ann. of Surg.*, November, 1921), briefly summarizes his remarks as follows:

First: For tuberculous cavities where gas injections into the pleural cavity, either because of too

rapid absorption of the gas or because adhesions prevented the collapse of the lung, extra-pleural thoracotomy should be performed. This may be completed or in stages, depending upon the condition of the patient.

Second: For bronchiectasis, extra-pleural thoracotomy may be performed, although incision and drainage or lobectomy offer a better chance of a radical cure.

Third: For foreign bodies which cannot be removed by bronchoscopy, thoracotomy, with direct removal by incision through the lung, would be the method of choice.

Fourth: For hemorrhage with increasing haemothorax, compression of the lung and displacement of the heart and mediastinum, thoracotomy with suture of the bleeding point is indicated.

Fifth: For abscess, thoracotomy and drainage of the abscess, attaching the pulmonary pleura about the opening of the lung to the parietal pleura in order to effect direct drainage, will give the best results.

Sixth: For tumors of the chest wall, including the ribs and pleurae, complete removal with a pediculated skin flap from the abdomen has been successful.

Seventh: For tumors of the lung, thoracotomy and direct excision by partial or complete lobectomy offer the only chance of curing the patient.

Eighth: For empyema, early and frequent aspiration, followed, if necessary, by intercostal incision and drainage.

If these methods are not efficacious, one of the radical operations should be performed.

[E. H. R.]

THE SURGICAL TREATMENT OF GOITRE IN SWITZERLAND.

BLOCH AND CHARRIER (in *La Presse Médicale*, October 26, 1921) note certain differences in the technique used by the Swiss surgeons in the treatment of goitre. The inferior thyroid artery is always ligated first.

1. Parenchymatous Goitre.

The two inferior thyroid arteries are ligated, the goitre delivered and the anterior branches of the superior thyroid arteries ligated. A subtotal thyroidectomy is then done, leaving the isthmus and the posterior portion of each lobe.

2. Nodular or Cystic Goitre.

After ligation of the two arteries on one side, if a unilateral goitre, a subtotal resection is done on one side and never an enucleation of the goitre.

3. Exophthalmic Goitre.

Little emphasis is laid on metabolism. Hemithyroidectomy or thyroidectomy is preferred to simple ligation. As much of the operation as possible is done on one side, leaving the other side free from scar tissue if further operation is needed.

[E. M. D.]

STILLBIRTHS.

COUVELAIRE, A. (*La Presse Médicale*, November 19, 1921), writes of the stillbirths in the Baudelocque clinic, over one-half of them due to syphilis and the toxemias of pregnancy. The French classify under stillbirths deaths during pregnancy and labor and up to the end of the third day after birth.

1. The majority of deaths before the sixth month are due to syphilis or criminal abortion.

2. The deaths during delivery are due to bad mechanical or dynamic conditions or to the poor condition of the foetus from syphilis, etc.

3. Deaths before the third day after birth are due to congenital weakness because of prematurity, caused by the poor health of the mother, often from overwork.

He suggests as remedies:

1. Medical supervision of pregnancy, dispensary examinations, and supervision in the home by visiting nurses.

2. Obstetrical assistance. He urges more and better maternity hospitals for complicated cases, and the replacement of the midwives by doctors in the simple cases treated at home.

3. Social assistance,—the right to free treatment for the poor, and government compensation in return for quitting work during the late stages of pregnancy.

[E. M. D.]

TOTAL COLECTOMY.

SIR ARBUTHNOT LANE (*La Presse Médicale*, August 3, 1921), discusses the indications, technique, and results of total colectomy. He urges its use:

In cancer of the colon.—The author prefers the complete operation because of the decreased possibility of recurrence, the easiness of the ileo-sigmoid anastomosis, the chance to insert a rectal tube beyond the point of anastomosis, and the relief from the stasis prevailing in the whole colon.

2. In megacolon.—Total colectomy relieves the ptosis present in the small intestine. The anastomosis is easier to make than one between two sections of dilated colon.

3. In colitis and diverticulitis.—If medical treatment fails, colectomy is advised. This relieves the stasis always present in this condition.

4. In chronic intestinal stasis.—Under this head the author discusses at some length the theories of autointoxication, advising colectomy for a wide variety of ailments.

The technique of the operation is not described, other than the statement that an end-to-end anastomosis is done. *Results*.—In cases of enterocolitis the symptoms may in part persist. The results, in other conditions, are said to be good, provided the medical after-treatment is carefully carried out. The operative mortality is about four per cent.

[E. M. D.]

VASCULAR HYPERTENSION, ITS ORIGIN AND PATHOLOGY.

TRUNECEK (*Revue de Médecine*, 1921, Nos. 6, 7, and 8) discusses arterial hypertension, spasmodic and plethoric hypertension, their causes, symptoms and the course of the disease. He concludes:

Vascular hypertension has its chief basis in the alteration of the blood plasma. These alterations constitute the early stages of several so-called chronic diseases, stages which might be called precirrhosis, prenephritis and presclerosis.

In every case there is at first a chemical alteration of the blood plasma, the latter then influencing the whole system. These chemicals influence different tissues differently.

There are two types of chronic constitutional disease, one, as arteriosclerosis, characterized by pathological changes in the organs; the other, as vascular hypertension, caused by chemical changes in the blood plasma.

[E. M. D.]

MOBILITY OF THE NORMAL KIDNEY.

HITZENBERGER AND REICH, from Wenckebach's first medical clinic at Vienna, have demonstrated to their own satisfaction (*Wien. klin. Woch.*, November 10, 1921) by pyeloscopic observations, the static and respiratory mobility of the normal kidney. They find that the kidney moves with the excursion of the diaphragm in every position of the body, and is habitually lower in standing than in lying. Exaggerations of this normal mobility result in true nephroptosis.

[R. M. G.]

ALBEE'S OPERATION FOR POTT'S DISEASE.

MATHERS, from Wittek's orthopedic and casualty clinic at Graz, reports (*Wien. klin. Woch.*, November 17, 1921) excellent results from Albee's operation in

five of six cases of vertebral tuberculosis. He believes, however, that the indication for the operation is restricted to adults.

[R. M. G.]

A NEW SKIN REACTION IN LUPUS.

BUSACCA, from Finger's skin clinic at Vienna, reports (*Wien. klin. Woch.*, November 24, 1921) a new intracutaneous reaction in skin tuberculosis, produced by the injection of normal horse serum. He believes this test diagnostic for lupus vulgaris and lupus erythematosus.

[R. M. G.]

A MEDICAL POET OF MARYLAND.

We already owe a great deal to Dr. Ruhrah; most recently for resurrecting, to our knowledge, John Shaw (*Ann. of Med. Hist.*, September, 1921), a medical poet of Maryland, a gentleman, physician, and a scholar. Shaw's verse has a haunting melody that reminds one at once of Gay and of Moore. His genius is, perhaps, best shown in his translations, notably his version of a Portuguese air, and his rendering of the first ode of Anacreon. Ruhrah sketches interestingly Shaw's life, his travels, his brief medical career, his slender contribution to literature, his death from tuberculosis at the age of thirty. Had he lived, his name might have ranked with those of other men of letters who have also gained distinction as teachers and practitioners of medicine. It deserves to be treasured with those of other minor medical poets to whom literature has been light through dark and weary days.

[R. M. G.]

THE EFFECTS OF ALCOHOL UPON DIGESTION IN THE STOMACH.

HAULBORG, A. O. (*Acta Medica Scandinavica*, 1921, Supp. 1), studied, by means of the stomach tubes, the effect of alcohol in various forms upon digestion. He found that resorption takes place mainly through the stomach, and is more rapid when the stomach is empty. When amounts of alcohol comparable with the amount consumed normally (in Europe) are ingested, 80-90 per cent. undergoes combustion within the first three or four hours. Not more than 0.5 per cent. of the alcohol consumed is excreted through the kidneys.

In regard to the effect of alcohol upon digestion. Haulborg found in one experiment that alcohol of a concentration of less than 10 per cent. appeared to cause a considerable rise in proteolysis. Alcohol in stronger concentration than 20 per cent. prevented proteolysis. The ingestion of large doses of alcohol (50 ccm. aqua vitae) after a meal is not followed by disturbance of gastric digestion. In fact, secretion of gastric juice is increased. The ingestion of this amount of alcohol before eating, however, disturbs digestion to a considerable extent. In from one and a half to two hours after ingestion, alcohol increases the free HCl in the stomach to an appreciable degree. Haulborg believes that this effect is most probably due to the effect of alcohol upon the nervous system. The secretion of gastric juice did not appear to be increased by the psychic influence of alcohol. The sight, smell and taste of beer and aqua vitae were without definite effect.

Beer and wine at first bind the free HCl of the gastric juice, but later cause a much increased secretion. In the course of three hours the proteolytic capacity of gastric juice may be increased by about 60 per cent.

In patients with hyperacidity and gastric ulcer, alcohol increased the acidity of the gastric secretion, and consequently increased the pyrosis and pain.

In cases of gastric cancer, alcohol does not affect the secretion of gastric juice, but sometimes does

appear to relieve pain and remove feelings of fulness and nausea.

In cases of achylia gastrica, alcohol increased proteolysis. In several cases alcohol produced free HCl when it was otherwise lacking. Haulborg believes that the value of alcohol as a "stomachic" has been over-estimated. Although small doses do augment secretion, this effect is only temporary. More than 10 per cent. of alcohol in the gastric contents, by producing chemical effects upon the pepsin, retards digestion.

The influence of beer and wine upon digestion, which is to promote secretion, must be largely ascribed to the extracts which they contain. [E. G. S.]

RENAL TUBERCULOSIS.

CAULK, JOHN R. (*The Journal of Urology*, August, 1921). About 30 per cent. of all the surgical lesions of the kidney are tuberculosis. This disease is usually a unilateral affair, primary in the kidney, as far as the urinary tract is concerned, but usually secondary to some other focus in the body, such as the lungs, bone, gland, bowel, or genital tract. Braasch, in the large series from the Mayo Clinic, shows that about 30 per cent. have pulmonary involvement.

Most authors concur in the belief that the usual path of infection to the kidney is through the blood stream, and there is abundant evidence to warrant the conclusion that this is the most universal manner of renal infection. With a small tuberculous involvement within the body, there are frequently temporary bacillemiæ. It is therefore easy to appreciate how a kidney, constantly filtering organisms, could under certain conditions become infected. There are also instances of tuberculosis in the substance of the kidney without any evidence of tuberculosis in the urinary tract.

This disease is one of early adult life; about 70 per cent. occurring between the ages of 20 and 40. Males seem more prone than females. A positive family history was given in 20 per cent.

The progress of the pathological processes in chronic tuberculosis of the kidney is variable, ranging from the very early lesion, as a slight granular area at the base of one of the pyramids, to complete destruction and isolation of the kidney.

Coincident with the lesions in the kidney and usually the first thing that attracts the patient's attention to the disease is the resulting condition in the bladder, namely, a spreading tuberculosis. This usually starts around the ureteral orifice in early cases as a tubercle, later caseation and ulceration. The process gradually extends and involves the different parts of the bladder wall with disseminated lesions.

Symptoms of renal tuberculosis are primarily and chiefly vesical. Painful urination, particularly terminal pain and hematuria. A hazy, limpid urine with occasional red blood cells or considerable pus without bacteria in ordinary stains is very suggestive of tuberculosis; such urine should be stained for tubercle bacilli and if a careful search is made, the organisms should be found in at least 75 per cent. of all the cases. The most important feature in the surgical outlook of the tuberculous subject is the finding of a unilateral tuberculous kidney and finding it early, before the late results have become manifest. There has never been, in the history of medical literature a single authentic case of spontaneous healing of a tuberculous kidney. As to the relief of bladder symptoms, it is hard to predict. Lower laid down the rule that the bladder caused the patient trouble as long after operation as it had before. Braasch claimed that the relief of bladder symptoms is proportionate to the severity of the lesion. The average mortality among operators is about 7 per cent. [B. D. W.]

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BOVINE TUBERCULOSIS IN MASSACHUSETTS.

THE hearing on House Bill No. 1093, before a joint session of the Legislative Committee on Agriculture and Public Health, on February 14, developed unusual interest. The bill provides for coöperation with the Federal Government in the establishment of herds and areas where dairy cattle shall be free from tuberculosis, the Federal Government duplicating the expenditure of the State, up to a certain amount, for the purpose of partially reimbursing farmers for slaughtered tuberculous stock. At the present time, Massachusetts and California are the only states not so coöperating, and California prohibits the sale of non-pasteurized milk except from tuberculin tested herds. The bill is proposed by the Ayrshire Breeders' Association of Massachusetts and is supported by practically every stock breeders' and farm organization of the State, as well as by leading health and welfare organizations.

Under existing Massachusetts law, indemnity can be paid by the Commonwealth only for cattle which are condemned by Division officials, such condemnation to occur as a result of physical examination, the use of tuberculin as a diagnostic agent being, in most cases, prohibited. As the majority of cattle reacting to a tuberculin test are not cases that can be readily condemned by physical examination, in-

demnity for such reactors cannot be paid by the State, and for that reason alone no Federal indemnity is available. The Massachusetts cattle owner, therefore, who desires to eradicate tuberculosis from his herd by slaughter of the reactors to an official test, finds himself denied both State and Federal indemnity as partial reimbursement for his losses, and consequently the work of eradication by the "tuberculosis-free accredited herd" plan has not progressed in this State to the extent it has in most other states of the Union, nor has the eradication of tuberculous cattle progressed to the extent it would if Massachusetts laws were more favorable to its progress.

Because of the fact that the Massachusetts stock breeder has found himself at a distinct disadvantage in the market with dealers from other states where dairy cattle offered for sale can be certified by the Federal Government as free from tuberculosis, as well as because of the realization of the great importance of the eradication of bovine tuberculosis as a public health measure, this bill has been brought forward. If the bill is passed, it means that a sum not to exceed \$50,000 from the Federal Government, in return for the appropriation of a like sum by the Commonwealth, will become available to stock breeders who voluntarily accept the aid. Under the operation of the Federal plan the owner, the State, and the Federal Government, each bear one-third of the loss, according to the appraised value of the slaughtered tuberculous stock.

It has been suggested that the bill would require no appropriation over the amount disbursed by the State in 1921, under the present plan. The amount expended for this purpose by the Commonwealth in 1920 was \$40,000. In 1921, because of the increase from forty to sixty dollars maximum per head indemnity, the amount expended was increased to \$90,000. Because of the decrease during the past year in the value of dairy cattle, it is estimated that the \$90,000 appropriation would carry the State, both for Federal coöperation and the independent state work as now conducted. There are at the present time 150,000 dairy cattle in the State, 20 per cent. of which are estimated to be tuberculous. It can be readily seen that if the percentage holds true, the cost to the Commonwealth of eradicating the entire 20 per cent. during the next ten or fifteen years would not be excessive.

At the hearing, the proponents of the bill expressed their belief that while the measure is not mandatory it will be taken advantage of by enough dairymen to absorb the fund available, as the Federal Government will not, this year, be able to allot more than \$50,000 to Massachusetts. Several farmers testified that they and others had already slaughtered their stock at severe personal loss, because of their inability

ity to secure either State or Federal aid, in order that their herds might be "clean."

The importance of the bill as a public health measure outweighed at the hearing, as it does in fact, the business side of the problem. As is well known to the medical profession pulmonary tuberculosis of bovine origin among adults is, so far as proven by any investigation, of extremely rare occurrence. In non-pulmonary tuberculosis among children, however, the facts are different. Fishberg says, "Under five years of age, 61 per cent. of cervical tuberculous adenitis, 58 per cent. of abdominal tuberculosis, and 66 per cent. of generalized tuberculosis and meningitis, which may be of alimentary origin, are caused by the bovine virus." Dr. A. Stanley Griffith, of London, who in a recent series of tests tabulated 1068 cases of tuberculosis, found 221, or 20.7 per cent., showing bacilli of the bovine type. He found the percentage to be much larger among children under ten years of age. Of 221 children less than five years old examined, 83, or 37.55 per cent., showed the animal germs. Of 312 children between five and ten years old examined, 92, or 29.45 per cent., showed animal rather than human germs. Of the total of 1068 tubercular children examined, 216 showed purely bovine tubercle bacilli, 847 showed purely human tubercle bacilli, and the remainder showed bacilli of both sorts.

Studies of this subject by German and French authorities, while less recent, are no less conclusive. French tests have shown 33 per cent., and German 24 per cent. of tubercular children examined, suffering from bovine infection. Bovine tuberculosis is undoubtedly responsible for a large percentage of non-pulmonary tuberculosis of childhood, which means that it is also responsible for a large percentage of tuberculous cripples. Approximately one-sixth of the mortality from tuberculosis in the Commonwealth, is of the non-pulmonary type of the disease. The above facts were clearly brought out by different speakers at the hearing.

A point was also advanced in favor of the bill, that it is not practicable to attempt to handle the health side of this problem wholly by the pasteurization of milk. At the present time not over 50 per cent. of the milk consumed in the State is pasteurized, and pasteurization for home consumption and in small communities probably will not become general.

It would seem to be sound business to stop at its source this cause, which is undoubtedly responsible for a considerable percentage of the deaths and human misery from tuberculosis, in addition to the huge annual expense to the Commonwealth for the care and maintenance of those thus afflicted. Judging from the strength developed in favor of this bill at the hearing, there seems to be some probability of its passing.

MATERNAL AND INFANT MORTALITY.

NEARLY two hundred and fifty thousand babies die in the United States each year. About one hundred thousand of these babies die in the first month of life, and most of them because of conditions affecting the mother before the birth of the child. Proper medical care during pregnancy would reduce this death rate to a large degree.

Probably more than fifteen thousand mothers die in childbirth, and a large number subsequent to parturition, by reason of conditions directly associated with pregnancy, damage during delivery, or sepsis. The contention is being repeated that over half of these deaths might have been prevented.

The United States Public Health Service has published a concise and very complete résumé of the essential prophylactic measures which should be employed to safeguard the mother and child. Beginning with the hygiene of pregnancy, the rules which a pregnant woman should follow are carefully presented and the importance of medical supervision explained. The symptoms suggestive of possible dangers are referred to and the folly of using patent medicines denounced. Lists of all needful articles for use during confinement are given, and directions for routine after-care are clearly stated. There follow careful explanations of the best methods employed in taking care of the baby, with admonitions relating to records and observations, in order that one may be able to detect any departure from normal development.

The indications of disease or functional disturbance are tabulated. The information covers the development of the child up to the twelfth year. The advice about the bottle-fed baby, with detailed direction for the preparation and care of the food, is presented in a clear and convincing manner.

Every suggestion will tend to make the mother feel the importance of depending on the well-educated physician, so that this publication cannot lead to the objection that it will in any way tend to eliminate the doctor's services or develop the habit of untrained prescribing. The publicity of the means by which illness may be avoided and the normal development of the child enhanced, should lead the laity to believe more and more in the advantages of knowledge.

Many busy practitioners could read this report to advantage. It would be very useful if consulted often and put into the hands of pregnant women. It appears in the *Public Health Reports* under date of February 3, 1922.

If local health organizations would freely distribute copies of this report to all married women, it is probable that good would result.

NOTICE.

ACCORDING to the usual custom, the JOURNAL will be sent to Fellows of the Society who have paid the annual dues on or before March 1st. The accredited list will be prepared this month, and if there are any Fellows who have omitted paying the yearly dues this matter should be attended to promptly, for otherwise any Fellow in arrears may fail to receive the JOURNAL.

NEWS NOTES.

WORCESTER DISTRICT MEDICAL SOCIETY.—At the regular meeting of the Society held February 8th, at Memorial Hospital, the following programme was presented: Empyema: Report of 100 Cases, by Dr. Donald Adams; A Rational Addition to the Treatment of Pneumonia, by Dr. O. H. Stansfield; Caesarean Section in the Presence of Pneumonia, by Dr. Walter Seelye; Sarcoma of Jaw (case report), by Dr. Harold Gibby; Spinal Cord Lesions, by Dr. Benj. Burley; The Whitman Loop Operation, by Dr. C. E. Ayers; Why Wait for Diphtheria Culture? by Dr. C. B. Stevens. Two other papers were on the programme, but owing to the late hour they were omitted. Those that were presented, however, were done so in a snappy, clear-cut fashion which made the afternoon a pleasant and profitable one for all who were present. The following members took part in the discussion: Drs. Gage, Miller, George, Shattuck, Stansfield, Stowell, Trowbridge, Kenney, and Stevens. About seventy members were present. At the business meeting it was voted to give the books in the Medical Library on Natural History, which were of no medical value, to the Worcester Natural History Society. From 6.30 to 7.30, the members were entertained at lunch by the Hospital and its Staff, and a good time was enjoyed by all.

DR. WM. T. SOUTHER of Worcester died at his home, 22 Auburn Street, February 21, 1922, aged 71 years. He was a graduate of Yale in 1873, and Harvard Medical School, 1877, and was House Physician at Boston City Hospital for one year. He was a member of the School Board of Worcester for many years.

FROM the standpoint of publicity the committee having in charge the Cancer Day programme can be very well satisfied. Over 1000 people heard Dr. Joseph Colt Bloodgood of Johns Hopkins University, representing the American Society for the Control of Cancer, give his splendid lecture on the prevention of cancer, at Hotel Baneroff, February 24, 1922. The Worcester newspapers gave many columns

to the subject, and Dr. Bloodgood returned to Baltimore very much pleased with his reception in Worcester.

R. J. WARD, *Reporter.*

PHYSICIANS FOR COUNTRY TOWNS.—The statement has been made in the public press that the Rockefeller Foundation stands ready to help by sending a physician to any community that provides a home for him. The question is one of vital interest to western Massachusetts.

EPIDEMIC JAUNDICE.—Several mild outbreaks of epidemic jaundice have been reported in New York City and throughout that State. There has been one fatal case. The majority of the cases have been among children. Physicians are urged to report the cases and submit data relating to this disease.

DURING the week ending February 25, 1922, the number of deaths reported was 327 against 213 last year, with a rate of 22.32 against 14.65 last year. There were 51 deaths under one year of age against 35 last year.

The number of cases of principal reportable diseases were: Diphtheria, 77; scarlet fever, 43; measles, 152; whooping-cough, 4; typhoid fever, 2; tuberculosis, 31.

Included in the above were the following cases of non-residents: Diphtheria, 6; scarlet fever, 9; measles, 1; whooping-cough, 1; tuberculosis, 6.

Total deaths from these diseases were: Diphtheria, 3; scarlet fever, 4; measles, 2; whooping-cough, 1; tuberculosis, 12.

Included in the above were the following cases of non-residents: Diphtheria, 2; scarlet fever, 1; whooping-cough, 1.

Influenza, 10 deaths. Lobar pneumonia, 40 deaths.

THE meeting of the New England Ophthalmological Society was held at the Massachusetts Charitable Eye and Ear Infirmary, 233 Charles Street, Boston, on Tuesday evening, February 28, 1922, at eight o'clock. At the annual meeting the following officers were elected for the ensuing year: President, Dr. F. H. Verhoeff; Vice-President, Dr. W. N. Souther; Secretary-Treasurer, Dr. W. Holbrook Lowell; Committee on Admissions: Dr. E. T. Easton, Dr. E. K. Ellis, Dr. Ralph Hatch. "It was proposed that membership in this Society should be unlimited, except as to qualifications as set down in the Constitution." Program: Hospital Cases: Papers: Blocking of Facial Nerve in Cataract Operations, Dr. George S. Derby, Boston; Clinical, Histological and Experimental Observations on Phacoanaphylactic Endophthalmitis, with Demonstration of Microscopic Specimens, Dr. F. H. Verhoeff, Boston.

DR. FRANK BILLINGS says: It behooves us as members of the medical profession to take the part of leadership in local, district and state health movements. Let us medicinize the social movement. That will help it forward and will place the medical profession in a position to rationally direct the health crusade.

DR. ROGER I. LEE, Professor of Hygiene, Harvard University, lectured before the School of Hygiene and Public Health, Johns Hopkins University, on "The Physical Examination of Large Groups of Individuals," at its regular weekly lecture, February 6.

JOHNS HOPKINS SCHOOL OF PUBLIC HEALTH.—The Rockefeller Foundation has given to Johns Hopkins University \$6,000,000 for endowment and buildings of the School of Hygiene and Public Health. The school has heretofore been supported by the Foundation. The site is to be adjacent to the Johns Hopkins Medical School. There are 131 students now in training in the school.

AN AMERICAN SURGEON HONORED.

"UNDER date of November 29th, 1921, the Bureau of Navigation received from the French Government the Officers' Cross of the Legion of Honor, conferred upon Commander William Seaman Bainbridge, M.C., U.S., N.R., of New York City."—*Army & Navy Register*, Nov. 29, 1921.

The same Journal, February 18, 1922, makes the following statement:

"Commander W. S. Bainbridge, M.C., U.S., N.R., sailed from New York February 7, on the *Aquitania*, to attend a meeting on February 20, in Brussels, as a member of the permanent committee of the Congress International de Médecine et de Pharmacie Militaires. It is understood that committee members from France, England, Holland, Switzerland, Italy and Spain will be present to decide upon a program covering questions of military and social medical organization. The full Congress met in Brussels last summer, when Commander Bainbridge acted as American member."

Obituaries.

WILLIAM CHRISTOPHER BERRY, M.D.

DR. WILLIAM CHRISTOPHER BERRY, a fellow of the Massachusetts Medical Society, died February 8, 1922, at the age of sixty-four. He was a graduate of Tufts College Medical School in the class of 1907, joining the State Medical Society two years later and settling in practice in Charlestown. In 1911 he moved to Jamaica

Plain and established an office in Warren Chambers, which was maintained until his death. Of late he had made his residence in West Roxbury.

DR. PEARCE BAILEY, NEUROLOGIST, DIES.

DR. PEARCE BAILEY, one of the best-known neurologists in America, who arranged the psychiatric tests used in the draft armies during the war, to weed out the unfit, died February 11, 1922, at his home, 45 West 53rd Street, after a brief illness from pneumonia.

He was born in New York July 12, 1865, and after being graduated from Princeton in 1886, studied medicine at Columbia, taking his M.D. there in 1889. He went abroad for a time to study, and then returned to this country to take up his work in neurology. He soon became known as one of the most skillful practitioners in this line in the country.—*New York Times*, Feb. 12, 1922.

CHARLES EZRA TAFT, M.D.

DR. CHARLES E. TAFT, of Hartford, Connecticut, died in that city, February 10, 1922, at the age of fifty-eight.

He was born in Dedham, Massachusetts, July 11, 1863, graduated from Harvard Medical School in 1886, joined the Massachusetts Medical Society, served as medical house officer at the Boston City Hospital and then went to New York City to fill the position of house surgeon at the "Womans Hospital, in the State of New York."

Completing his training there he settled in Hartford where he spent his life practising gynecology and obstetrics. He was attending surgeon to St. Francis Hospital and at one time assistant surgeon to the first regiment, Connecticut National Guard. He was a member of the Hartford Medical Society and of the County and State Medical Societies. Dr. Taft filled an important place in the medical community of Hartford and will be much missed by his confrères, and by a large clientele of patients.

HEBER BISHOP, M.D.

DR. HEBER BISHOP, surgeon, insurance man and big game hunter, died February 20, 1922, at the Copley Square Hotel, where he had made his home for a quarter of a century. Death was due to heart trouble and came suddenly, although he had been ill for twelve weeks. Soon after he had eaten his breakfast a sinking spell occurred and he failed to rally. His death removes one of the foremost fishermen and sportsmen in America.

Dr. Bishop was born in Marbleton, Quebec, on July 26, 1858. His parents were Henry Gordon Bishop and Catherine Howard (Farnsworth) Bishop. He was a descendant of Francis Cooke, one of the Mayflower band of voyagers, and on his father's side, of Hon. James Bishop, who was a lieutenant governor of Connecticut.

Heber Bishop attended a normal school at Marbleton, from which he was graduated in 1874. He received the degree of B.A. from Bishop's College, Lennoxville, Quebec, in 1875; and then studied medicine at McGill University. About this time he married Emma Louise Woolley of Ogdensburg, N. Y., and then went to London, where he spent considerable time in St. Thomas's Hospital, of which he was a life member. He was made a member of the College of Physicians and Surgeons of Montreal in 1882.

On returning from London, he practised medicine in New York City, with offices in the old Hoffman House. He then came to Boston and from 1884 until 1888 practised his profession here. In 1888 he was made surgeon and adjuster for the United States Mutual Accident Association of New York, filling that office until 1895, when he became surgeon and adjuster for the Etna Life Insurance Company of Hartford. He was finally made manager of the accident and health departments of that company and filled this position until his death.

Dr. Bishop held a commission as surgeon of H. M. Fifty-eighth Regiment, Compton Battalion of Infantry, of Quebec, which he received in 1882. He was treasurer of the board of trustees of the New England Home for Deaf Mutes.

He was one of the founders of the Megantic Fish and Game Club in Canada, was a member of the North American and the Massachusetts Fish and Game Protective associations, the Canadian Club and the Boston City Club. In Masonry his affiliations were with Massachusetts Lodge, A. F. and A. M., St. Andrew's Chapter, and Boston Council.

The trophies of his hunting and fishing prowess are preserved at his lodge in Maine. In addition to his widow, he is survived by two daughters.

EDWARD MUSSEY HARTWELL, M.D.

FOLLOWING an illness that had extended over several weeks, Dr. Edward M. Hartwell, Secretary of the Statistics Department of the City of Boston since its establishment in 1897, died at his home in Jamaica Plain February 19, 1922.

Dr. Hartwell was a native of Exeter, N. H., where he was born May 29, 1850. He was the son of Shattuck and Catherine Stone (Mussey)

Hartwell. He prepared for college at Lawrence Academy, Groton, and the Boston Latin School, and entered Amherst, from which he graduated in the class of '73. Three years later he received his A.M. degree from Amherst, and in 1881 he was awarded a Ph.D. by Johns Hopkins University. In 1882, Dr. Hartwell was honored by Miami Medical College of Cincinnati with the degree of M.D., and LL.D. was given him by Amherst in 1898.

During 1873 and 1874 Dr. Hartwell was vice-principal of the Orange, N. J., High School, and for the following three years he was instructor in the Boston Latin School. He began his medical studies in Cincinnati with his uncle, Dr. William Mussey, a physician then widely known in Ohio. He was a fellow at Johns Hopkins in 1879 and 1880, later being an associate in physical training and director of the gymnasium at the University from 1883 to 1891. He became director of physical training in the public schools of Boston in 1891, remaining until 1897. Then a department of statistics was established in this city and he became secretary, holding the position up to the time of his death.

Dr. Hartwell was chairman of the Massachusetts Commission for the Blind from 1906 to 1908. In 1888 and 1889 he was special expert agent of the United States Department of Labor in Europe. Dr. Hartwell studied in Berlin, Vienna, and Stockholm, and made special investigations in hygiene, education and statistics in Great Britain, Germany, Russia and Scandinavia. He was a member of the Boston Society for Medical Improvement, American Statistics Association, St. Botolph Club, Twentieth Century Club and Puddingstone Club. He was a member of the Medical and Chirurgical faculty of Maryland and the Eliot Club of Jamaica Plain.

Dr. Hartwell had done considerable in a literary way. He made some translations from Swedish, and wrote numerous pamphlets, articles and reports upon physical training, school hygiene and the condition of the blind. He also contributed papers to the publications put out by the United States Department of Labor, the United States Bureau of Education, National Municipal League, and the American Statistical Association. As a result of his studies in Berlin, Vienna, Stockholm and Moscow, Dr. Hartwell became an authority in many lines of historical and scientific research.

While abroad as the special agent of the United States Department of Labor, Dr. Hartwell was married in London, Eng., on July 25, 1889, to Miss Mary Laetitia Brown of Baltimore, Md. She survives him, as do two daughters and a son.

Miscellany.**AMERICAN SOCIAL HYGIENE ASSOCIATION.**

FROM THE REPORT OF FRANCES M. HOLLINGSHEAD, M.D., DIRECTOR OF THE BUFFALO FOUNDATION.

THE Board of Managers, Department of Hospitals and Dispensaries, requested the Buffalo Foundation to make a social investigation of the Urologic Clinic. Herewith is an abstract of the facts disclosed by this investigation:

The Venereal Disease Clinic of Buffalo occupies a series of rooms in the Health Center Dispensary Building. The personnel consists of a part-time physician-in-charge, five part-time assisting physicians, a head nurse and an assistant, an orderly, and a clerk. The quarters are thoroughly sanitary.

As a result of the investigation, the Buffalo Foundation comes to the following conclusions:

The clinic managed under the municipality becomes a very important part of the educational program being carried on for the cure and prevention of venereal disease. Buffalo should enlarge the local program very much. There is need for much education through lantern slides, lectures, and films, by qualified persons. Industrial concerns should coöperate strongly in this.

The Buffalo Department of Hospitals and Dispensaries deserves much credit for having entered this field very early on the curative side, and for having done a very creditable piece of work. Other agencies ought to do their share to develop the preventive and educational activities.

Much education is needed to instill into the minds of the public the knowledge that venereal disease must be treated as an infectious disease, and cured as completely as possible, and that such conditions will never be attained until the public accepts the conditions as they are and agrees to do away with the traditional wall of mystery which has been established about the whole matter. This requires the coöperation of the Health Department, the Department of Hospitals and Dispensaries, Public Schools, Women's Clubs, and the Nursing Association. The Clinic, however, must be the center around which the work revolves.

The Clinic at Health Center No. 5 is not perfect, but it is very much in advance of other city clinics, and can be made a model clinic. The public's share in this work is to give generously of the city money to secure the best.

TYPES OF PATIENTS AT THE UROLOGIC CLINIC OF BUFFALO.

During the period of 30 days in which the social investigation was being made, there were

admitted to the Clinic 165 new patients—133 white and 32 colored. Of the 165, only 27 were females; but indications are that with further separation of the sexes, the attendance of women will be markedly increased.

The ages ranged from nine to seventy-nine years. Children under 16 are sent to the Children's Clinic for regular treatment. The marital condition of the patients is as follows: Of the 138 males, 34 were married; of the 27 females, 19 were married.

Of the 165, 108 were located either at or from their homes. The number of unlocated persons after one interview represented 19 per cent. of the total. Most of these had deliberately given fictitious addresses in order to cover up their tracks. A regular social worker employed permanently in the Clinic, could trace these patients by asking to have them sent back to the interviewer in their next visit to the Clinic.

As regards employment, only 42 of the 165 were known to be employed. Four were students, and for four others no information was available. Of the 115 who were not employed, 14 had not been employed less than three months, 54 had been unemployed for from three to six months, 15 from six months to a year, and six had been unemployed for longer periods, up to six years; 27 failed to give length of unemployment. The majority had been engaged in common laboring jobs, in factories, railroads, steel mills, etc.

The occupations can be classified into 37 different groups. The two largest are common laborers and factory workers. Some of the others were sailors, chauffeurs, garage workers, steel workers, domestic servants, motormen, and even a clergyman.

Of the 42 who were employed, six were earning less than \$10 a week, 17 were earning from \$10 to \$19 per week. Of the latter, five have from four to six dependents. Twelve patients earn between \$20 to \$29. Only five patients earn from \$30 to \$40. Most of the patients earning from \$20 to \$40 have dependents, which makes clinic treatment the only kind that they can have available within their budgets.

In general, the facts as brought out by the survey of the Buffalo Urologic Clinic indicate that the maintenance of a clinic for the diagnosis and treatment of venereal diseases is absolutely essential to preserve the public health of the community.

Symposium on Syphilis. *Pennsylvania Journal of Medicine*, January, 1922.

The symposium on the treatment of syphilis held during the General Meeting of the Medical Society of the State of Pennsylvania, Philadelphia Session, October 5, 1921, included a

number of papers of interest to the progress of the control of syphilis. Jay Frank Schamberg, who read the paper, "Modern Conceptions of the Treatment of Syphilis," concludes that no crystallized formula of treatment can be adapted to all cases, and in no disease is individualization more essential than it is in syphilis. Thomas McCrae, whose paper dealt with the treatment of visceral syphilis, believes that the cure of that form of syphilis is more or less uncertain. Mercury is an important aid. In aortic syphilis, the dosage of arsphenamin or nearsphenamin should be small, and in hepatic syphilis, not at all. The Wassermann reaction, whether negative or positive, should be regarded conservatively, he asserts.

The paper on neurosyphilis, read by Harry C. Solomon, emphasized the following points: Neurosyphilis often develops during the course of the usual routine antisyphilitic treatment, in which case the treatment must be considered inefficient. The method of treatment must depend upon the individual case. Often mercury and iodides may succeed after arsphenamin fails to effect a cure. The spinal fluid is not the major criterion, as patients whose fluids remain pathological may recover clinically, whereas patients whose fluids become negative may succumb from neurosyphilis. In closing, Dr. Solomon says:

"I would have you believe that I am optimistic about the treatment of neurosyphilis. Not all cases can be helped. But many cases which are considered incurable can be greatly benefited by intensive and prolonged treatment of the proper sort. We have at our disposal the means with which to help many cases of neurosyphilis, including meningitis, tabes, and paresis. Many of these cases are considered hopeless because of inadequate handling."

In the discussion that followed the presentation of the papers, Dr. Schamberg makes the following pertinent statement:

"If there is any maxim or principle that we may set down in the treatment of syphilis, it appears to me that the hazard of the treatment should be measured against the hazard of the disease."

NEW AND NONOFFICIAL REMEDIES.

DURING February, the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion in *New and Nonofficial Remedies*:

Persson Laboratories: Bacillus Coli Antigen (No. 50), Persson; Furunculosis Vaccine (Mixed) (No. 37), Persson; Gonococcus Antigen (No. 47), Persson; Staphylococcus Aureus Antigen (No. 49), Persson; Streptococcus Antigen (No. 48), Persson; Pneumonia Vaccine (No. 36), Persson.

Powers-Weightman-Rosengarten Co.—Novarsenobenzol, Billon.

G. H. Sherman—Whooping-cough Vaccine, Sherman; Mixed Typhoid Vaccine, Sherman; Aene Staphylococcus Vaccine, Sherman.

Winthrop Chemical Co.—Alypin.

Butyn. — Páraminobenzoyl-gammadinormal butylaminopropanol sulphate. It is a local anesthetic proposed as a substitute for cocain, particularly in surface anesthesia, as for the eye, nose and throat. It has the advantage of acting through intact mucosae almost as effectively as cocain. On the normal human eye, a 0.5 per cent. solution of butyn is less effective than a 1 per cent. solution of phenacain, but more efficient than a 1 per cent. solution of cocain or a 1 per cent. solution of eucain. Butyn has been used with success in practically all operations on the eye, and in some operations on the nose and throat. Butyn is supplied in solution and also as Butyn Solution, 2 per cent.; Butyn Tablets, 0.2 gm., and Butyn and Epinephrin Hypodermic Tablets.—The Abbott Laboratories, Chicago.

A NEW LOCAL ANESTHETIC.

Many new local anesthetics have been introduced into medicine in recent years. Some of these have largely displaced cocain for certain purposes, but cocain is still the drug preferred by many for surface anesthesia, *i.e.*, for application to mucous membranes. A distinct advance in the discovery of drugs useful for anesthesia of the mucous membranes seems to have been made in Butyn (pronounced Bute-in, with the accent on the first syllable), as announced by the Council on Pharmacy and Chemistry in the *Jour. A. M. A.* for February 11, 1922, p. 431. This compound resulted from the systematic studies of Professors Roger Adams and Oliver Kann of the University of Illinois, and Dr. E. H. Volwiler of the Abbott Laboratories, Chicago.

Chemically, butyn belongs to the proeaine ("novocaine") group of drugs, but unlike procaine, it has a much greater ability to penetrate and anesthetize mucous membranes. A comprehensive report of the use of this drug in ophthalmic and in nose and throat work, prepared by Dr. A. E. Bulson, Jr., for the Committee on Local Anesthesia of the Section on Ophthalmology, appeared in the *Jour. A. M. A.* for February 4, 1922, p. 343. The Committee concludes that butyn is more powerful than cocain, a smaller quantity being required; it acts more rapidly and the action is more prolonged; to date, it seems less toxic in the quantity required; it produces no drying effect on tissues and no change in the size of the pupil; it has no ischemic effect; it can be boiled without impairing the anesthetic efficiency.

On the other hand, the Council warns that butyn does not appear promising for injection anesthesia or for spinal anesthesia, since its toxicity is materially greater than that of procaine and equal to that of cocaine.

The profession will welcome any drug which can replace cocaine, on account of the serious public health problems the illegitimate use of the latter involves, and will hope that the time will come when it can dispense entirely with this dangerous habit-forming drug. Butyn may be obtained without narcotic blanks.

REPORT OF THE DEPARTMENT OF HEALTH OF THE STATE OF NEW JERSEY.

IN view of some common problems relating to administrative and legislative matters, the report of the New Jersey Department of Health for the year ending June 30, 1921, is interesting.

According to the statement of the Chief of the Bureau of Medical Supervision, the Department of Health receives the cordial support of the medical profession, although lack of proper organization inhibits the efficiency of the medical fraternity. Even though conditions are not ideal, the Department evidently entertains the hope that the future may demonstrate the beneficial influence of this coördination. The problems relating to maternity and infant welfare seem to be much like those in Massachusetts. The maternal mortality was 20 per cent. higher in 1920 than in 1919, and the statement is made that the rate of 5.5 per 1,000 births, or the loss of one mother in 181 births, is unusually and distressingly high. The conclusion is "that high maternal mortality is neither particular to the large cities nor to the rural counties, but is determined by a number of factors into which enter prenatal care, the character of the obstetric service, the availability of expert care for complicated cases, and the proper after-care of the mother."

The stillbirth rate was 42.1 per 1,000 births, and the important statement is made that these death rates represent conditions that also lead to chronic invalidism for thousands of mothers. This opinion has never been adequately expressed, for the pathos of the invalid mother has been overlooked, to some extent, because it cannot be shown in statistics.

The results of the supervised mothers show that the infant mortality can be materially reduced, but the prenatal care was, so far as the Bureau is concerned, applied in 384 mothers out of a total of 76,431 deliveries.

The midwives question is taken up at length. There were 28 per cent. of the deliveries conducted by midwives. Licenses have been is-

sued to 956 midwives, and about 450 are practising. Investigation shows that 215 unlicensed midwives were found to be operating. This seems to show that the contention made before Massachusetts legislative committees, that licensing of midwives would eliminate the unworthy, is not sound. Although New Jersey favors the midwife, there are difficulties in getting her to appreciate and apply American standards of living and modern ideas of hygiene. A frank admission is made in the following statement relating to midwives: "We regret to be compelled to report that we have not accomplished as much as we would like to have accomplished, and feel that must be accomplished, properly to protect mothers and infants." Those of our citizens who are trying to legalize the work of the midwife in this State should study the problem from all angles. The statistics relating to the mortality under the operations of midwives is probably as misleading as statistics sometimes are, for in many cases the conditions leading up to death among those attended by midwives lead the midwife to transfer the patient to the care of a physician, and after delay, or the development of sepsis, his efforts may be unavailing, and the practitioner of medicine is charged with the death.

A pertinent question is this: Would a well-trained physician permit his wife or daughter to be cared for during parturition by a midwife? If not, the reason should be given. The solution of this problem lies far beyond the licensing of the midwife.

RED CROSS PIN.

It may not be generally known that wearing a Red Cross pin by a nurse not accredited by the Red Cross is contrary to law, but the arrest of a wearer of this emblem recently, calls to mind an act of Congress, reading as follows:

"It shall be unlawful for any person within the jurisdiction of the United States to wear or display the sign of the Red Cross or any insignia colored in imitation thereof for the fraudulent purpose of inducing the belief that he is a member of or an agent for the American National Red Cross.

"If any person violates the provisions of this section he shall be deemed guilty of a misdemeanor and upon conviction in any federal court shall be liable to a fine of not less than \$1.00 nor more than \$500, or imprisonment for a term not exceeding one year, or both, for each and every offence."

It was explained at the local headquarters that in order to win the privilege of wearing the Red Cross pin, a girl must first become a graduate nurse of a recognized hospital and

must have had training and education of a high standard. When she applies for a Red Cross badge her records are checked up very carefully and an enrollment card is kept at the local office, while a duplicate is sent to national headquarters in Washington. Every pin is numbered and thus it is an easy matter to check up.

THE METHODS OF THE MEDICAL LIBERTY LEAGUE.

THE following circular has been distributed among members of the Legislature:

A NEW RESOLUTION WORTH WHILE.—Isn't it a fact that most laws are proposed by the infinitesimal minority for the coercion of the great majority?

You'll agree, too, that through Law we have our being. But through man-made law most of us are named, numbered, tagged and directed. Through law most of us are threatened, brow-beaten, forbidden and punished. Of course, we are registered, licensed, taxed and exploited throughout life until all semblance of individuality, personality and initiative are lost.

On top of all this, when the grafters, the bigots, the social service enthusiasts, the medical monopolists, the conscienceless idle rich philanthropists, the uplifters and reformers (those unhappy creatures who are the real candidates in need of reform) get through with us, then, and only then, does the good Lord have an opportunity to judge us. So with Divine Insight. He caused to be written those words: "Blessed are they which are persecuted, enter thou into the Kingdom of Heaven."

A wise legislator once said: "Let us not make more laws, but rather unmake many of those now made." Rather broad-minded, don't you think? It is another way of suggesting that the people be distrusted less and trusted more.

A true legislator fulfills his destiny when he is broad enough to say: "Henceforth I will do much more than I have been doing for those who, through economic and other necessities, cannot speak for themselves against those to whom food, clothes and rent are of no concern. These latter are usually so busy wreathing their own halos and 'protecting' the common people with more shackles and fetters of fanaticism."

"Henceforth the interests of the great, suffering majority shall be my chief concern. I will protect them from the coal baron, the gasoline pirate, the over-zealousness of the movie censor, the corrupt lawyer, and especially from the *Politico-Medical Trust*."

This is a man-size job!

RÉSUMÉ OF COMMUNICABLE DISEASES. JANUARY, 1922.

General Prevalence.

There were 6,755 cases of communicable diseases reported for this month as compared with 5,903 cases reported for December. This does not represent a report of large size when it is considered that this is a season of greatest prevalence of most of the important communicable diseases. There were 9,185 cases reported for the same period for 1921.

Anterior Poliomyelitis was reported eight times during the month.

Chicken-pox. There were 834 cases of this disease reported for January. Total for last month was 900 cases.

Diphtheria showed a lessened incidence with 911 cases as compared with 1,088 cases for the previous month.

Dog-bite requiring antirabic treatment. There were 17 persons bitten by rabid dogs during this month.

Encephalitis Lethargica was reported in 10 instances.

German Measles. There were 40 cases of this disease reported for the month.

Gonorrhea and Syphilis. Gonorrhea showed a slightly increased incidence, while syphilis showed a slightly decreased incidence. Totals for the month were 404 for the former and 200 for the latter.

Influenza increased from 46 cases for the preceding month to 135 cases for this month. For January, 1921, 158 cases were reported.

Measles increased from 835 cases for December to 1,275 for this month. This does not represent an unusual number as the total for January, 1921, was 2,230 cases.

Pneumonia, Lobar. There were 571 cases of lobar pneumonia reported for the month. This increase over the incidence of the previous month is not unexpected. The total for January, 1921, was 587 cases.

Scarlet Fever showed a like general increase; total for the month was 923 cases.

Tuberculosis, Pulmonary. There were 480 cases of pulmonary tuberculosis reported for the month. This is about the usual number.

Tuberculosis, other forms, was reported in 61 instances.

Typhoid Fever. There were 31 cases reported for this month. This is the least monthly total in nearly two years.

Whooping-cough increased slightly to 326 cases. This represents a small monthly incidence.

RARE DISEASES.

Anterior Poliomyelitis was reported from Cambridge, 1; Lawrence, 2; New Bedford, 1; Palmer, 2; Winchendon, 1; Woburn, 1. Total, 8.

Anthrax was reported from Peabody, 1.

Dog-bite, requiring antirabic treatment, was reported from Arlington, 1; Cambridge, 1; Lowell, 6; Lynn, 3; North Attleboro, 1; Pittsfield, 1; Swampscott, 3; Winthrop, 1. Total, 17.

Dysentery was reported from Fall River, 1.

Encephalitis Lethargica was reported from Beverly, 1; Boston, 1; Fall River, 1; Lynn, 1; Newburyport, 2; Newton, 1; Peabody, 1; Somerville, 1; Watertown, 1. Total, 10.

Epidemic Cerebrospinal Meningitis was reported from Boston, 2; Lowell, 1; Southbridge, 1; South Hadley, 1; Springfield, 1; Winchendon, 1; Worcester, 1. Total, 8.

Malaria was reported from Boston, 1.

Pellagra was reported from Salem, 1; Wrentham, 1. Total, 2.

Septic Sore Throat was reported from Boston, 4; Bourne, 1; Fall River, 1; Haverhill, 1; Leominster, 1; Lowell, 1; Lunenburg, 1; Medford, 1; Springfield, 1; Wellesley, 1. Total, 13.

Tetanus was reported from Boston, 1; Leominster, 1. Total, 2.

Trachoma was reported from Norwood, 1; Tewksbury State Infirmary, 1. Total, 2.

the Middle Ages, including Plague, Gangrenous Ergotism, Leprosy and Malaria.

2. The History of Anatomy.

3. The revival of medical knowledge during the sixteenth century.

Communications should be addressed to: The General Secretary, Dr. J. D. Rolleston, 21, Alexandra Mansions, King's Road, London, S.W. 3.

The subscriptions are as follows: Members of the International Society of the History of Medicine (including annual subscription), £1 12s; Members of the London Congress only, £2; Associate (student or relation of a member), 8s.

Remittances should be sent to the Treasurer, W. G. Spencer, Esq., O.B.E., F.R.C.S., 2, Portland Place, London, W. 1.

The officers of the Congress are: President of Honour, Sir Norman Moore, Bart., M.D.; Vice-Presidents of Honour, Sir D'Arcy Power, K.B.E., F.R.C.S.; Professor Ménétrier, Professor Jeanselme, Dr. Tricot-Royer; President of Congress, Charles Singer, M.D.; Treasurer, W. G. Spencer, O.B.E., M.S.; General Secretary, J. D. Rolleston, M.D.

THIRD INTERNATIONAL CONGRESS OF THE HISTORY OF MEDICINE.

THE International Society of the History of Medicine was founded in Paris on October 8, 1921. It has for its object the study of the History of Medicine in all its branches and the coördination of research work in these subjects.

A Permanent Committee has been established in Paris, consisting of delegates appointed by Sections of the Society in various countries.

The Society meets in congress every three years, and it has been decided to hold the next meeting in London, from July 17th to 22nd, 1922. Meetings will be held at the Royal Society of Medicine, the Royal College of Physicians, the Royal College of Surgeons, the Wellcome Historical Medical Museum, and elsewhere. There will be special exhibitions of objects connected with the history of medicine, surgery and the allied sciences. The loan of any objects of special interest from members will be greatly appreciated by the Executive Committee.

Communications are invited from members on subjects connected with the history of medicine in all its branches.

The following subjects have been suggested for communication and discussion, but are by no means intended to exclude papers on any subject of general interest in connection with the history of medicine:

1. The principal seats of epidemic and endemic diseases in the Occident and Orient in

MASSACHUSETTS STATE NURSES' ASSOCIATION.

THE mid-winter meeting of the Massachusetts State Nurses' Association was held at the New England Women's Club, February 18, 1922.

The morning session, in charge of the League of Nursing Education, Miss Melissa Cook, President, presiding, was very largely attended.

Following the business meeting valuable papers were contributed by Dr. Maynard Ladd, "Some Facts in the Feeding of Children," and Dr. L. Vernon Briggs, "Mental Hygiene in Its Relation to Present-Day Nursing."

Miss Bertha M. Wood, in charge of the Nutrition Clinic in Boston Dispensary, opened the discussion following Dr. Ladd's paper.

Miss Margaret J. Fallon, Superintendent of Nurses, Boston Psychopathic Hospital, presented the schedule of the proposed post-graduate course at the Boston Psychopathic Hospital.

Miss Minnie Hollingsworth presided at the Private Duty Nurses' Section at 11:30 A.M. Reading of reports, nomination of officers, discussion of representation and program for Seattle convention constituted the business meeting.

The afternoon session was opened by Miss Carrie M. Hall, President, presiding. Prayer was offered by the Reverend Alexander Mann, D.D., Rector of Trinity Church, Boston.

Following the business meeting, Miss Cameron, Assistant Director of the Red Cross Nurs-

ing Service of New England, gave an interesting report of the activities of Red Cross nursing for 1921.

Miss Sally Johnson, Superintendent of Nurses of Massachusetts General Hospital, Boston, told of the 1920 Legislative Campaign of the New York State Nurses' Association, and Miss Sarah E. Parsons, of Boston, gave the facts of the 1921 Legislative Campaign of the Missouri State Nurses' Association.

A general discussion followed.

Tea was served at 4.30 P.M., by the Peter Bent Brigham Hospital Nurses' Alumnae Association.

Miss Zepha Gardner presided at the Public Health Section meeting at 5 P.M.

Dr. C. Macfie Campbell, Director of Boston Psychopathic Hospital, gave an excellent talk on "Importance of Psychiatry for the Nurse."

All the meetings were largely attended.

The following composed the committee in charge of arrangements for this meeting: Ellen C. Daly, R. N.; Sally Johnson, R. N.; Helen M. Blaisdell, R. N.; Jane B. Homer, R. N.; Anna R. Ross, R. N., Chairman; Mary Alice McMahon, R. N., Publicity Chairman.

NEW ORGANISM AKIN TO BOTULINUS.

THE existence, says the Public Health Service, in a recent report by Ida A. Bengtson, has been demonstrated of an anaerobic organism producing a soluble toxin which affects animals in a manner similar to that of the botulism organism, but which fails to be neutralized by polyvalent botulinus antitoxin. Study of the organism, as found in the larvae of the green fly, *Lucilia caesar*, sent to the Service, indicates that it differs markedly from the botulinus isolated in the United States, and possibly is more nearly related to the European type described by von Ermengem in 1912, though it differs from this in important respects. Tests on laboratory animals by inoculation and by feeding, caused death in from five to seventy-one hours. The most striking pathological result was, as in botulism, the congestion of the blood vessels of the brain and meninges. Efforts are being made to produce an antitoxin. The suggestion that the organism of the disease causes limberneck in chickens has not yet been demonstrated.

LEGISLATIVE NOTES.

THE bill originally presented by Bernard Early, providing for additional remuneration for the Chairman of the Board of Registration of Nurses, has been amended by the Committee on Public Service and now appears as House 1312. This bill provides for a maximum compensation for the chairman of this board of seven hundred and fifty dollars.

THE Committee on Public Health have reported "leave to withdraw" on Senate bill 130—petition of Medical Liberty League relating to vaccination and school attendance, and House bill 1056—petition of George W. Reed for elimination of the requirement of a physician's certificate as to vaccination as a prerequisite to admission to public schools.

LEGISLATIVE HEARING.

House bill 955 was considered by the Committee on Public Health March 1st.

This bill is designed to amend the law relating to the registration of physicians. At the present time, Massachusetts only requires of applicants for registration that a physician must have graduated from a medical school which gives a four-year course. The quality of instruction is not in any way defined, and there are no provisions relating to preliminary education or clinical experience.

The result is that graduates from medical schools which have little or no standing among recognized authorities may and often do secure the right to practise in this State.

The hearing was conducted by Dr. Charles F. Painter, Chairman of the Committee on Medical Education of the Massachusetts Medical Society. Dr. Painter explained the provisions of the bill which would, if enacted, require students to have spent two years in a college of liberal arts in addition to a high school course, and to have given attention to biology, chemistry, physics and the English language. The bill further provides that applicants should have had experience as an interne in a hospital of at least twenty-five beds. He explained the importance of intellectual training in order to enable a student to assimilate the instruction now given in well-equipped medical schools.

Dr. Stevens of the Committee exhibited a map showing state regulations relating to medical education. Ten states require two years of premedical work in a college of liberal arts and one year as interne. Two require one-year premedical college work and one interne year. Twenty require two years of premedical. Two require one year of premedical. Five require four years in a high school. One has no provision in the law relating to premedical work, but gives to the registration board power to rule that only graduates of class A and B colleges shall be accepted. Two have no requirements in the law but give discretionary power to the board. And Massachusetts stands at the present time the lowest in the scale, for there is neither in the law nor in the power of the board any provision for fixing any standard for premedical study, internship nor any requirement of a medical college other than it must give a four years' course.

The President of the Massachusetts Home-

opathic Medical Society, Dr. Prior, Chairman of the Board of Registration in Medicine, and others, explained the fact that even the "poor boy" could, through scholarships and aid funds, get a medical education in a good school, at less expense than in a low-grade institution.

This situation has been clearly presented for several years, but the opponents have heretofore been able to convince the legislature that no change for the better is advisable.

The opposition to the bill came almost entirely from the osteopathic profession, and the College of Physicians and Surgeons of Boston. These objectors ignored the real purpose of the bill, which is to provide a better average grade of practitioners for the people of this State, and argued that the bill is designed to benefit that portion of the profession who have graduated from certain schools, and asserted that this bill is along the line of class legislation. The lack of logic did not seem to be appreciated by these opponents, for the purpose is to provide better service for all the people.

The contention was made that the requirement of an interne year would close the School of Osteopathy in this State, because no students are now taking as internes in many of the hospitals.

One can hardly appreciate the logic of this argument, for if the osteopathic profession intends to continue to develop practitioners of medicine there should be hospitals created which can give clinical instruction to the students. One can easily understand the ground for opposition, for if there is no probability of being able to develop a real medical school, these inadequately equipped institutions should retire from the educational field, but the supporters of these schools want to continue to maintain them.

THE SHEPPARD-TOWNER ACT.

The great interest of the public in the Shepard-Towner Act was evidenced by the fact that the Auditorium in the State House was filled at the hearing held on February 20, before the Committees on Public Health and Social Welfare, sitting jointly. The question was on the acceptance or non-acceptance of the act by the State.

Dr. Kelley, the Commissioner, and Dr. Champion, head of the Division of Hygiene, represented the State Department of Public Health. They advocated the acceptance of the act in spite of the fact that, in general, they opposed interference by the Federal Government in matters which they felt could better be left to the State and local agencies. The State must contribute so largely toward carrying out the provisions of the act that they felt it wise to accept the act, make an additional ap-

propriation of about \$15,000 and secure the grant from the Federal Government, in order to carry on: first, educational work; second, the investigation of conditions, and third, the development of nursing service. Other speakers in favor of the bill were Drs. S. B. Woodward of Worcester, and Dr. Robert DeNormandie of Boston.

Among those opposing the bill was Dr. Charles E. Mongan of Somerville. He pointed out the fact that under the provisions of the bill, the so-called Board, consisting of the Chief of the Children's Bureau, the Surgeon-General of the United States Public Health Service, and the Commissioner of Education, had little power, and that the administration of the act came under the Children's Bureau and the Secretary of the Department of Labor. The effect would be bureaucratic control.

The morning and afternoon sessions were consumed in the discussion, and therefore consideration of the Spencer bill was put off for a special hearing, set for March 8.

THE CHIROPRACTIC BILL.

The proponents of this bill, which provides for legalizing the practice of chiropractic, have decided to ask to have the bill considered in the legislature of 1923, and do not intend to have it considered in this session.

Correspondence.

"THOU SHALT NOT KILL."

Mr. Editor:

Recently I read in the Boston press of a bill proposed by a legislator from Worcester which would provide with sentencing to death hopeless incurables. I hope you will allow me space to register my protest to this bill.

"Thou shalt not kill" is as old at Mount Sinai, where Moses received God's Decalogue. The proposed law would strike at the very foundation of religion.

Most physicians would object because what is proposed would violate that portion of the oath of Hippocrates which says, "I will use that regimen which, according to my ability and judgment, shall be for the welfare of the sick, and I will refrain from that which shall be baneful and injurious. If any shall ask of me a drug to produce death, I will not give it, nor will I suggest such counsel."

If the proposed law were passed, the value of life would be lessened. Life is valued little enough now. Scan the columns of the daily newspapers and read of the murders and suicides. Are not conditions bad enough now? Who could be trusted with the authority to sentence to death the hopeless victims?

Life is sweet, even to those hopelessly incurable, and if these incurables are resigned to bear their crosses of suffering, why should the law interfere?

The proposed law would be contrary to the teachings of Christ, who alleviated suffering, not by kill-

ing off the incurables, but by curing them. Didn't he make the lepers clean, the blind see, the lame walk, the deaf hear, and the dead rise? Of course we cannot perform miracles, but that is no reason why we should break the commandment, "Thou shalt not kill."

Yours very truly,

GAETANO PRAINO, M.D.

DOMICILIARY TREATMENT OF TUBERCULOSIS.

Mr. Editor:

The editorial on Domiciliary Treatment of Tuberculosis in the edition of February 16, 1922, should receive the careful attention of physicians who have the care of tuberculous patients in their homes. There are one or two statements, however, which I am inclined to challenge as tending, possibly, to be subversive of methods which after thirty-odd years of experience in the sanatorium treatment of pulmonary tuberculosis, I regard as of paramount importance.

First, is the method of fresh air carried to its limit, even in cold weather and, in my opinion, this is best carried out by open-air (balcony) sleeping, rather than in rooms with the windows open, the tendency to draughts being less in the former case. Naturally, body warmth is of the greatest importance, and this can be accomplished easily, even in very cold weather, by proper clothing and bedding.

Your editorial makes this statement: "There are many consumptives . . . who are attempting to sleep, *between shivers* (the italics are mine), in the open air who would be vastly better off in a warmer, comfortable room (which they are really longing for), with less air and more comfort."

I challenge this statement as liable to serious misinterpretation with a tendency to throw discredit upon what has been proven of infinite benefit to many a consumptive, in contrast to the old methods of keeping patients "out of night air," in warm, stuffy rooms, thus depriving them of one of the most important factors in cure and prevention of disease. While granting that in cases of far-advanced disease, the more rigorous methods may be modified, it would be a thousand pities if such a statement as quoted above, with the stamp of authority upon it, were to be construed as advocating any radical modification of our present advocacy of fresh air treatment pushed to the limit in suitable cases.

In the new Children's Preventorium at Sharon, the only modification of the treatment is during school hours, when the warmly clothed children are taught in a large, properly ventilated, slightly warmed schoolroom, the windows of which are open, thus enabling the children to work with their hands more easily, without danger of being chilled, in accordance with the demonstrations of Dr. Chadwick of the Westfield Sanatorium to which your editorial refers. I should like to take this opportunity to urge all physicians to visit the Preventorium and see for themselves the methods pursued there for delicate children between six and fourteen years of age.

Frequent questionings of patients who sleep on the open balconies at Sharon in the coldest weather has revealed the fact that they have been "perfectly comfortable," and an attempt to take them indoors is usually resented, and the pity expressed at such times by friends for their supposedly uncomfortable condition, is usually met with laughter and denial. In the early days of the Sharon Sanatorium, the open-air treatment was not so rigidly enforced as in later years. When first established, it was accompanied by a fear lest it might be too

rigorous, especially for elderly people. As a matter of fact, a surprising and very marked improvement in all results was noted, following this change, in the majority of cases, there being only few exceptions to the general rule. Even in cases of elderly women over sixty years of age, for whom one would naturally suppose that such treatment would be far too rigorous, we have counted some of our most successful results, the patients having often been the most enthusiastic adherents to the methods used, leaving the sanatorium looking bright and well, and with the glow of health upon their faces that removes all doubt as to the efficacy of their treatment, as far as the general condition is concerned.

In regard to the cold baths upon rising, the editorial is, in my opinion, also misleading. No sensible person would ask a patient to go from a warm bed into "ice-cold" water; but the practice of cold (not tepid) bathing when in a properly warmed bathroom is, in the majority of cases, favorable in its tonic effect. Here again there may be exceptions to the rule, but long experience teaches me the wisdom and the beneficial effects of cold bathing in the morning as a routine treatment. Such methods do not involve "prodigal and wasteful expenditure of vital energy," but, in my opinion, tend to improve it.

Very truly yours,

VINCENT Y. BOWDITCH.

AMERICAN SOCIETY FOR THE CONTROL OF CANCER.

Mr. Editor:

It may interest some of your readers to see a detailed report of the results of the activities of "Cancer Week" (October 30 to November 5, 1921), in Massachusetts. Twenty cities and towns in the State took part, and the officers of the different District Societies of the Massachusetts Medical Society contributed in every way to make a success of this movement in popular health education, which originated in the American Society for the Control of Cancer. The report follows:

SUMMARY REPORT.

A. Number of lectures delivered	104
1. Total number of persons reached by lectures	14,515
B. Amount of literature distributed (number of pieces)	95,000
1. Number of post cards disposed of	1,000
C. Number of news articles and editorials printed	67
1. Number of Moving Picture Theatres in which slides were shown	20

DETAILED REPORT.

	No.	Attendance
A. Lectures before:		
Professional and scientific bodies	33	1,695
Public audiences	14	2,925
Meetings for medical students	2	600
Meetings for dental students	1	150
Meetings for Public Health students	1	50
Meetings for nurses (graduate and undergraduate)	17	2,625
Meetings for women's clubs	16	1,465
Meetings for social service	2	335
Meetings for Chambers of Commerce	3	480
Meetings for Labor Unions	4	1,230
Meetings for ministerial groups	1	20
Meetings for Church Clubs	5	650
Meetings for Rotary and Kiwanis Clubs	4	290
Meetings for High Schools	1	2,000
	104	14,515

- B. 2 Special Posters, printed and circulated 9,370 copies
- 1 Special Announcement "Cancer Week," circulated1,500 copies
- C. Publicity:
- 1. Number of news articles (4 Sunday specials) 48
 - Number of editorials..... 19
 - Number of articles in Medical Journals 2
 - Number of editorials in Medical Journals 2
 - 2. Number of slides prepared for movies.. 19
 - Number of theatres where shown..... 20
 - Number of times shown..... 4 to 42
 - Approximate number of persons reached 100,000
 - 3. Number of showings of A.S.C.C. film.. 2
- D. Number of demonstration clinics..... 15
(Counted above in lectures before Professional and Scientific bodies.)
- ADDITIONAL.
- A. Cancer exhibit, Harvard Medical School 2 weeks
 - B. Circular letter Local Health Boards of Massachusetts 355 copies
 - C. Circular letter Industrial Nurses... 28 copies
 - D. Special edition Bi-monthly "Common Health," by State Department of Health, to doctors and others 10,000 copies
 - E. Circular "Cancer Week" to:
 - (1) Federation of Churches.... 355 copies
 - (2) Episcopal Ministers 300 copies
 - (3) General Circulation..... 900 copies
 - F. Letter to Dentists of Massachusetts 3,000 copies
 - G. "What We Know About Cancer," to Physicians and Medical Students 600 copies
- Respectfully yours,
R. B. GREENOUGH, *Chairman.*
Massachusetts Committee, American Society for the Control of Cancer.

REGISTRY OF BONE SARCOMA.

227 Beacon Street.

BOSTON, MASS., February 27, 1922.

Mr. Editor:

I wonder if the result of my letter in your issue of February 2nd would interest your readers? My letter was intended to enable the Registry of Bone Sarcoma to find out how many cases of Bone Sarcoma were known to be living in Massachusetts, whether cured, under treatment, or moribund. It suggested that if every one of the 5494 physicians in this state would drop me a postal stating whether or not he knew of a case, we should have at once the best statistics ever obtained on the frequency of this disease.

In reply I have had, up to date, *only seventeen negative and two positive answers*. Is this because your Journal is not read or because of the indifference of the medical profession as to whether the frequency of bone sarcoma is known or not?

Perhaps your readers may be interested in the human nature problem involved, even if they are indifferent as regards the advance of medical science. Your editorial board may also be interested to know what proportion of your 3546 subscribers in Massachusetts read the Journal thoroughly. I therefore enclose a diagram which aims to analyze the problem.

If you are interested enough to publish this letter and diagram in three successive issues, I will undertake to send a return postal to every physician listed, as living in Massachusetts, in the Directory of the American Medical Association, who has not dropped me a postal a week after the third issue. On one-half of the postal I will have this diagram printed; the other half will have the return address

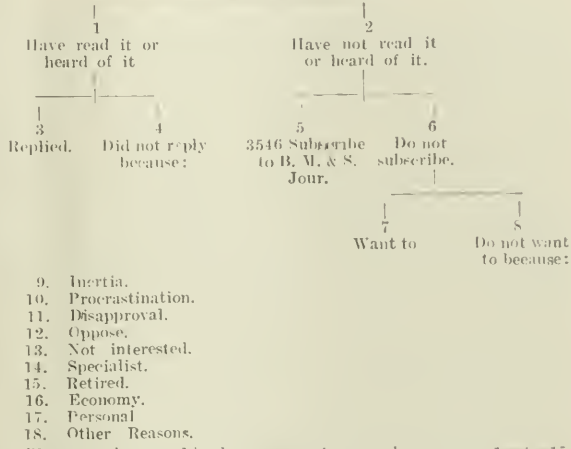
to me. Eventually you can publish the diagram with the numbers following each heading. This will give the facts to the few interested in bone sarcoma and the many interested in the *Boston Medical & Surgical Journal*, and in the psychology of the medical profession.

Sincerely,

E. A. CODMAN, M.D.

5495 PHYSICIANS IN MASSACHUSETTS.

LETTER ON REGISTRY OF BONE SARCOMA IN BOSTON Medical & Surgical Journal, FEBRUARY 2, 1922.



Please reply to this by consecutive numbers, e.g., 1-4-15 means "I have read or heard of the Registry and did not reply because I have retired from practice"; 2-6-8-16 means "I have not read nor heard about the Registry of Bone Sarcoma and do not subscribe to the *Boston Medical and Surgical Journal* from motives of economy."

RECENT DEATHS.

DR. GEORGE A. OVIATT physician in South Sudbury for forty-six years, died at the Waltham Hospital, February 26, 1922, at the age of seventy-two years. He was the son of the Rev. George A. Oviatt, minister of the Congregational Church at South Sudbury, and received his medical education at the College of Physicians and Surgeons, Columbia University, New York, where he took his degree in 1875. The next year he settled in South Sudbury. In addition to an active practice, during his lifetime he was interested in the town library and in church and Red Cross work. Although beyond the retiring age of sixty-five, he maintained active fellowship in the Massachusetts Medical Society, which he joined in 1876. He is survived by his widow, a son and a daughter.

DR. WILLIAM TOWLE SOUTHER, aged 71 years, a physician in Worcester for years, died February 21, 1922, at his home, from pneumonia.

He was born in Belfast, Me., March 7, 1850, the son of the Rev. Samuel L. Souther and Mary Francis Towle. The latter is still living in Cleveland, Ohio, and is 96. The Souther family went to Worcester when Dr. Souther was seven years of age. He was graduated from the Classical High School and then entered Yale University. He was graduated with the degree of A.B. in 1873. After acting as principal at the Grafton High School for one year he went to Harvard Medical School, where he was graduated in 1878. He served as house officer at the Boston City Hospital and began to practise medicine in Worcester that year.

Dr. Souther was a fellow of the Massachusetts Medical Society from 1877 until 1911, when he resigned. He was a member of the Worcester Medi-

cal Improvement Society and of the Worcester Natural History Society.

Dr. Souther was particularly interested in educational matters. He was a Republican, and was elected as member of the school committee, Ward 1, in 1884, serving for a number of years, part of the time as chairman of the committee.

Dr. Souther retired from active practice about 15 years ago.

• AMERICAN PEDIATRIC SOCIETY.

PRELIMINARY PROGRAM.

Thirty-fourth annual meeting, May 1st, 2nd, 3rd, 1922, Wardman Park Hotel, Washington, D. C. Members are urged to make hotel reservations at once. Committee of Arrangements: Maynard Ladd, President; Charles A. Fife, Chairman of Council; Howard Childs Carpenter, Secretary, 1805 Spruce Street, Philadelphia.

Monday, May 1st. Opening session. Presidential address, Maynard Ladd; Prognosis and Treatment of Tuberculosis in Infancy and Childhood, Rowland G. Freeman; D'Espine's Sign in Childhood, John Lovett Morse; The Size of the Sella Turcica in Relation to Body Measurements, Lawrence T. Royster and Nathaniel F. Rodman (by invitation); A Further Note in the Use of Water in Dehydrated Infants, J. Claxton Gittings. Afternoon. Second session: The Treatment of Pyelitis, Henry F. Helmholtz; Indications for Tonsillectomy in Infancy and Childhood. Is the Modern Tendency Toward Universal Tonsillectomy Justified? Henry Heiman; Report of Studies on Intestinal Motility in Infancy, Rood Taylor; Observations on the Hydrogen Ion Concentration of the Gastro-Intestinal Secretions in Infancy, W. McKim Marriott and Leonard T. Davidson (by invitation); Experimental Studies with Proprietary Vitamine Products, Julius H. Hess, Josiah J. Moore (by invitation), and Joseph K. Calvin (by invitation); Infantile Cerebro-Cerebellar Diplegia, Atonic Type, T. C. Hempelmann. Evening: Meeting of Council, 8.15.

Tuesday, May 2nd. Third Session: Title to be announced later, John Howland; The Rate of Secretion of Breast Milk, Charles Hendee Smith; Blood in Human Milk, Isaac A. Abt; Spasmophilia, Henry Koplik; The History of a Case of Measles, Complicated by Otitis Media, Mastoiditis and Meningitis, Henry T. Machell; A Peculiar Case of Purulent Meningitis in the New Born, DeWitt H. Sherman; Case Report of an Unusual Mediastinal Tumor, Thomas B. Cooley. Afternoon. Fourth session: A Study of the Acidosis Due to Ketone Acids, James L. Gamble; "Follow-up" Records of a Series of Patients with Bronchial Pneumonia, Walter Lester Carr; Basal Metabolism of Prematurity, Fritz B. Talbot and Warren R. Sisson (by invitation); Observations on Burns in Children, Kenneth D. Blackfan and Harold L. Higgins (by invitation); title to be announced later, D. J. Milton Miller; Lucilia, the Ubiquitous Paralysis Fly and Its Ally, the Buzzard, E. W. Saunders. Evening: First session of Congress of American Physicians and Surgeons; address by the President of the Congress.

Wednesday, May 3rd. Fifth session: Business meeting (for members only), Report of Council; A Study of the Shadows in the Thorax of the Newly Born, L. R. DeBuys; Aplastic Anemia in Children with the Report of a Case Markedly Improved by Transfusion, Charles Herrman; title to be announced later, D. Murray Cowie; The Dosage of Diphtheria Antitoxin, and Analysis of the Records of the South Department, Edwin H. Place; Acute Infections of the Urinary Tract in Infants and Children, Subsiding Without the Appearance of Pus in the Urine, Walter R. Ramsey. Afternoon. Second session of Congress of American Physicians and Surgeons. Subject: Some Aspects of the Physiology

and Pathology of Nutrition. Papers: E. V. McCollum, School of Hygiene and Public Health of Johns Hopkins University; L. B. Mendel, of Sheffield Scientific School of Yale University.

Notice.—The number of visitors to the annual meeting is not limited, but guests shall be restricted to those especially invited by the Committee of Arrangements.

CORRECTION RELATING TO THE REPORTED DEATH OF DR. GEORGE H. GORHAM OF BOSTON.

Dr. Walter L. Burrage, Secretary of the Society, reports that the statement in the *Journal of the A.M.A.* of February, 18, 1922, relating to the death of Dr. George H. Gorham of Boston is incorrect.

Dr. George H. Gorham of 81 Corey Street, West Roxbury, is alive.

The statement probably referred to George H. Gorham of Bellows Falls, Vt. It is hoped that Dr. Gorham of Boston will enjoy long life.

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

REPORTED WEEK ENDING FEBRUARY 25, 1922.

Disease.	No. of Cases.
Anterior poliomyelitis	2
Chicken-pox	127
Diphtheria	187
Dysentery	1
Encephalitis Lethargica	2
Epidemic Cerebrospinal Meningitis.....	2
German Measles	7
Gonorrhea	87
Influenza	1,285
Malaria	2
Measles	590
Mumps	124
Ophthalmia Neonatorum	19
Lobar Pneumonia	283
Scarlet Fever	208
Septic Sore Throat.....	5
Syphilis	38
Suppurative Conjunctivitis	8
Trachoma	1
Trichinosis	1
Tuberculosis, Pulmonary	90
Tuberculosis, other forms.....	17
Typhoid Fever	18
Whooping Cough	84

STAFF MEETING AT THE CHILDREN'S HOSPITAL.—A clinical meeting of the staff of the Children's Hospital will be held in the amphitheater, Friday, March 10, 1922, at 4.30 p. m. Cases will be demonstrated. Physicians and students are cordially invited to attend.

STAFF CLINICAL MEETING, BOSTON CITY HOSPITAL.—Cheever Surgical Amphitheatre, Friday, March 10, 1922, at 7.45 p. m. to 9.30 p. m. Topics: Some Facts Concerning Results in Cases of Obstructing Prostates Treated at the Boston City Hospital during the Past Four Years, H. Howard, M.D.; Some Unusual Conditions in Renal Tuberculosis, A. L. Chute, M.D.; Hydronephrosis, W. C. Quinby, M.D.; Stasis in the Kidney, E. G. Crabtree, M.D. Discussion opened by P. Thorndike, M.D. Physicians and Medical Students invited. Refreshments, 9.30-10.30. H. Archibald Nissen, M.D., Halsey B. Loder, M.D., Committee.

The Boston Medical and Surgical Journal

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The New England Surgical Society

ACUTE PANCREATITIS.*

By DANIEL FISKE JONES, M.D., F.A.C.S., BOSTON.

"ACUTE PANCREATITIS," the title of this paper, is a term which will probably always be used, but I shall try to show, farther along in the paper, that it is not specific enough and that the two terms—acute pancreatic necrosis, or acute hemorrhagic necrosis of the pancreas, and acute interstitial pancreatitis—will describe more accurately the exact condition we are talking about.

So much work has been done on experimental pancreatitis, one feels that it should be quite well understood by this time; but, unfortunately, we seem almost as far from a solution of the problem as ever.

In 1856, Claude Bernard first produced pancreatic necrosis, experimentally, by the injection of bile and sweet oil into the pancreatic duct. Since then, Opie¹, Flexner², Hlava³, Guleke⁴, and Brocq⁵, and many others, have produced pancreatic necrosis by the injection of various substances into the duct, or gland, itself. The more important of these substances are: gastric and duodenal contents, weak acids and alkalies, fatty acids, normal bile, bile salts, and infected bile.

In 1901, Opie¹ injected bile into the pancreatic duct and produced necrosis. The same

year, he published the autopsy report of a case of pancreatic necrosis in which a small stone was found blocking the papilla of Vater in such a way that it converted the biliary and pancreatic systems into one. This supposedly caused a backing up of bile into the pancreatic duct and so caused the pancreatic necrosis. There have been several such cases reported since.

Brocq⁶, in 1914, demonstrated experimentally that normal bile would cause acute hemorrhagic necrosis of the pancreas only during the period of active digestion.

While the production of experimental pancreatic necrosis was quite easy, the substances injected into the pancreatic duct were all injected under unknown pressures.

Archibald⁷, appreciating that gallstones were not always present to block the outflow of bile in the cases of necrosis, started investigations and found a sphincter muscle at the duodenal papilla, and later found that this sphincter had been described by an Italian physiologist, named Oddi. He then determined to inject various substances under a pressure which the sphincter of Oddi would resist, that is, a pressure of from 400 to 700 mm. of water. Infected ox bile, injected under a pressure of 500 mm. of water, produced extensive hemorrhagic necrosis. Sterilized human bile produced slight necrosis of the parenchymal cells, detected only by the microscope. Sterilized human bile, deprived of its mucin, produced a

* Read before the New England Surgical Society, at Worcester, September, 1921.

much more extensive necrosis. These experiments demonstrated that a pressure considerably greater than that at which bile would be excreted, that is, 350 mm. of water, was necessary to produce an effect upon the pancreas. No physiological means of increasing the pressure in the biliary system was found.

Judd and Mann⁸ took up these experiments at this point and demonstrated that even though the gall-bladder is a muscular organ, contraction of it will not increase the pressure in the biliary system more than 50 mm. of bile. They also demonstrated that by causing the violent muscular effort of retching, the pressure in the biliary system could be increased to 500 and 1000 mm. of bile. They then injected normal bile from the animal operated upon into the biliary system at pressures of 500 and 1000 mm. of bile. The effect was so slight under both pressures that they considered that bile injected into the pancreatic duct under physiological conditions, had no effect upon the pancreas.

In the light of Archibald's and Brocq's experiments, there are several points to be considered in these statements of Judd and Mann. Archibald stated that normal sterile bile produced no macroscopic changes, but that microscopically there was some necrosis when introduced under the conditions used by Judd and Mann. Judd and Mann did not give us the microscopical findings.

Brocq⁶ states that normal bile injected into the pancreatic duct would produce haemorrhagic necrosis only if injected during the process of digestion. Archibald also demonstrated that changed bile, that is, either infected bile or bile deprived of its mucin, or bile rich in salts, would produce much more extensive necrosis than normal sterile bile.

If we now combine the experiments of Archibald, Brocq, and Judd and Mann, we have all the steps necessary to produce pancreatic necrosis under physiological conditions. That is, Archibald has demonstrated that the sphincter of Oddi will resist a pressure of from 400 to 600 mm. of water, and that infected bile, or bile with little mucin or an increased proportion of bile salts, introduced into the pancreatic duct under that pressure, will cause pancreatic necrosis. It is fair to assume that in cases of pancreatic necrosis we have an infected or changed bile. Even if we do not have an infected or changed bile, Brocq has demonstrated that normal bile introduced into the pancreatic duct during active digestion, will produce necrosis. Many cases of pancreatic necrosis in humans occur soon after a hearty meal. Judd and Mann furnish the one missing link by demonstrating that the pressure in the biliary system can be increased to 1000 mm. of bile by violent muscular effort, such as retching.

Besides these experiments we have four autopsy reports by Opie¹ which deserve much more serious consideration than has been given to them, for there are few autopsy reports that have gone into details as to the relation of the necrosis of the pancreas to the ducts, and the anatomical relation of the ducts to each other. These four autopsies which gave us these details must therefore be considered carefully. The first is the autopsy report of a case of Eliot. A patient, after long-continued vomiting, had a severe attack of epigastric pain, and died in three days. At autopsy, an acute haemorrhagic necrosis of the pancreas was found. The duct of Wirsung was very small and the duct of Santorini, with a normal opening into the duodenum, was the main duct of the organ. The necrosis was localized almost entirely about this duct.

The second case, that of Bassett, was an acute haemorrhagic necrosis which was localized about the duct of Santorini, which drained only a small part of the head of the gland, and was patent throughout its course into the duodenum.

Two other cases—those of Johnston—were acute haemorrhagic necrosis in which the duct of Santorini was the main duct of the organ, with a normal opening into the duodenum.

There are several facts to be considered in connection with these cases. Brocq, and others, have shown experimentally that duodenal contents injected into the pancreatic duct will produce hemorrhagic necrosis. In all four of these cases, the main duct of the pancreas, or the one about which the necrosis was localized, was the duct of Santorini. In two, the necrosis was definitely limited to the area drained by the duct of Santorini, in one a very small area, and in the other a large part of the gland.

It would seem from the consideration of these reports that we must consider not only retrojection of changed bile and normal bile during the process of digestion, into the pancreatic duct, but also retrojection of duodenal contents into the duct of Santorini, as causes of acute pancreatic necrosis.

Judd and Mann reject Archibald's theory as to the cause of pancreatitis, partly because of the slight effect of normal bile on the pancreas, as stated above, and partly because the proper anatomical relation of the ducts occurs so seldom. That is, the anatomical arrangement of the duct of Wirsung and common duct must be such that a spasm of the sphincter of Oddi or a small stone at the papilla can close the common duct without closing the duct of Wirsung at the same time. Observations made on 170 autopsies, demonstrated this to be possible in only nine out of two hundred individuals. Opie¹ examined one hundred cases at autopsy, and found that the arrangement of the ducts

was such that it could occur in thirty out of one hundred. Deaver and Sweet⁹ also use this as an argument against Archibald's theory; but if we consider the number of cases of pancreatitis of whatever variety, we would quite certainly not have more than nine cases in each two hundred individuals. If we accept the clinical evidence as given us in Opie's four autopsy reports, that retrojection of the duodenal contents may cause pancreatic necrosis, the anatomical arrangement of the ducts would be such as to permit the occurrence in ten out of each hundred individuals (Opie): that is, the duct of Santorini is the main duct in that proportion of individuals. It would seem, therefore, that we have sufficient experimental and clinical proof, and the proper anatomical relation of the ducts in a sufficient number of individuals, to warrant us in saying that the retrojection of bile or duodenal contents into the pancreatic ducts may cause pancreatic necrosis.

Deaver and Sweet, and Judd and Mann have accepted Mauder's theory that pancreatitis is caused by an infection of the pancreas from the gall-bladder, through the lymphatics of the gall-bladder to the lymph-nodes of the cystic duct, thence by periductal lymphatics through the glands, along the common duct to the glands at the head and margin of the pancreas, thence by regional lymphatic distribution in the head of the pancreas.

Archibald is opposed to this theory on the ground that it is difficult for an infection to pass from the gall-bladder to the pancreas against the lymphatic current and through so many sets of glands.

Graham¹⁰, and others, have, however, seemed to prove that it is quite possible for infection to pass in this way. One objection which we have to this theory is that there is no experimental proof that an acute haemorrhagic necrosis can be caused by infection through the lymphatics. Graham shows bacteria in the interstitial tissue of the pancreas, but says nothing about pancreatic necrosis.

It is very unsatisfactory to leave the solution of the problem of the etiology of acute pancreatitis here, but it seems impossible to go farther unless we are willing to concede that acute pancreatic necrosis, and pancreatitis so often found in association with infections of the biliary system, are two distinct diseases with different causes.

It is difficult to discuss a subject when so little is known about the pathologic findings, as we know about those of pancreatitis associated with infections of the biliary system. In fact, some pathologists go so far as to say there is no such condition as the chronic pancreatitis which surgeons find so often associated with gallstones. So far as we can learn, the pancreatitis associated with infections of the bili-

ary system is an inflammatory change in the interstitial tissue of the gland, and is so spoken of by Opie. Graham has also shown bacteria in the interstitial tissue of the gland in certain cases of experimental cholecystitis. On the other hand, the condition found in the pancreas in acute pancreatic necrosis, is primarily a necrosis of the parenchymal cells, and in certain cases at least, the necrosis is localized along the pancreatic duct involved, as demonstrated by Opie.

Is it not possible, therefore, that we are dealing with two distinct diseases due to different causes?

It is impossible to read the articles of Deaver, and others, who accept Mauder's¹² theory as to the cause of pancreatitis, and those of Archibald, and others, who believe in his theory, without feeling that they are discussing two different diseases.

Archibald, and others, produce pancreatic necrosis experimentally almost at will, by the injection of bile and duodenal contents into the pancreatic ducts under physiological conditions, while those who consider that pancreatitis is due to an infection, report no experimental cases of acute haemorrhagic necrosis due to lymphatic infection. Graham shows bacteria in the interstitial tissue of the pancreas, yet says nothing of pancreatic necrosis. Deaver and Sweet⁹ state that pancreatitis is a lymphatic infection of the gland, and Graham¹⁰ shows the bacteria present in the interstitial tissue, but no bacteria are found by smear or culture in the cases of pancreatic necrosis. Deaver⁹ states that in pancreatitis the gall-bladder or ducts show an infection in 91 per cent., while in pancreatic necrosis it would be difficult to state with accuracy that they were infected in 50 per cent. of the cases.

If pancreatic necrosis is due to the same cause as the pancreatitis found in conjunction with cholecystitis, is it not rather extraordinary that so few cases of pancreatic necrosis occur? Pancreatitis has been found to be present in from 23.8 per cent. to 50 per cent. of the cases of cholelithiasis. Among such a large number, should we not expect more cases of pancreatic necrosis? We have been able to find but 42 cases in the records of the Massachusetts General Hospital, and gallstones were present in but 50 per cent. of those.

In pancreatitis of the interstitial type, the tendency is to recover, no matter what operation is done, while in pancreatic necrosis, death occurs in at least 70 per cent. of the cases.

To sum up the preceding it is my belief that the pancreatitis associated with infections of the biliary tract is an inflammation of the interstitial tissue due to an infection, frequently through the lymphatics of the biliary systems; that acute pancreatic necrosis is a necrosis of the parenchymal cells due to a retrojection of bile into the duct of Wirsung or to a retro-

jection of duodenal contents into the duct of Santorini.

The interstitial pancreatitis may be acute or chronic, while the cases of pancreatic necrosis are always acute. There are undoubtable cases of recurrent pancreatic necrosis in which only a small area of the gland is involved. This is an aseptic necrosis and is absorbed, leaving little or no evidence of it later. This has been demonstrated experimentally by Whipple¹³.

It is also interesting to note that in 43 cases of acute pancreatic necrosis, 22 occurred in patients without gallstones, and of these, 17 had had one or more previous attacks of epigastric pain.

In considering the cases of pancreatic necrosis in this report I have included only those cases which showed definite macroscopic evidence of pancreatic involvement; the great majority of these were cases of acute hemorrhagic necrosis of the pancreas. Acute abscess of the pancreas has been included because it is impossible to separate them from hemorrhagic necrosis which has broken down. The total number of cases is 56, 42 of which were found in the Massachusetts General Hospital records, while 14 were private cases.

As to symptomatology, there is nothing unusual. The pain is a sudden, severe epigastric pain. The patient at once goes into shock of greater or less severity, depending upon the extent of the lesion.

The pain, after the first severe attack, becomes a great distress, not only in the epigastrium but frequently in the back. Patients will frequently say the pain is not severe, but the distress is almost unbearable. They move about in bed and impress one as being in great distress. The pulse is rapid, ranging from 100 to 160, often too rapid and small to count. The temperature, subnormal during the first few hours, gradually rises to 100°, rarely more. The patient is cyanotic, varying with the severity of the condition. Nausea and vomiting are usually persistent. There is leucocytosis, varying between normal and 15,000.

The abdomen contains bloody fluid and is very slightly tender all over, with definite tenderness over the pancreas, starting in the region of the gall-bladder and extending across the abdomen a varying distance, depending upon the extent of the involvement of the pancreas. This tenderness is always present in the first few days if carefully looked for, but may not be so evident after the acute stage passes. The careful localization of this tenderness is frequently the only means of making a differential diagnosis between an acute cholecystitis and a pancreatitis. Two cases have recently been reported by a surgeon, who stated that there was no abdominal tenderness in either case. If this were true after a painstaking examination of the whole abdomen, it would be very unusual.

Another important physical sign, when present, is tenderness at the left costovertebral angle, due to involvement of the tail of the pancreas. Obstipation is a symptom which is always present early, and associated with the pain and nausea, as it usually is, makes the diagnosis of intestinal obstruction a frequent one. In fact, among forty-two cases, a caecostomy was done once and an ileostomy twice. The various tests, such as Cammidge's, have proved of little value.

We must, I feel sure, be much more thorough in our examinations of the pancreas at operation than formerly, for short, sharp attacks of epigastric pain may be due to the pancreas and yet produce very slight evidence in the gland. It is, I believe, quite possible to have small areas of parenchymal necrosis which disappear, leaving practically no trace, as stated by Whipple.

Nicoll¹⁴, of London, has removed sections of the gland in a number of cases of this kind, and has found evidence of necrosis under the microscope which was not visible to the naked eye. Removal of a section of the pancreas in many of these cases would be of great value, but the danger of pancreatic leakage has deterred us from removing the sections. Nicoll, however, reports no bad results.

As to treatment, we must be guided by what we believe to be the etiology of the type of disease we have to treat. If we accept Mangeret's theory we must remove the gall-bladder, the source of the infection. If we accept Graham's experiments, which demonstrate the infection of the gall-bladder from a hepatitis through the lymphatics, we must, I think, admit the lymphatics of the hepatic and common ducts may become infected from the liver, and the pancreas infected through them. If this is a fact, removal of the gall-bladder would be of little value. However, removal of the gall-bladder is the only rational treatment under the circumstances, as we can do no more. If we accept Archibald's theory that acute pancreatitis is due to retrojection of bile into the pancreatic duct because of obstruction at the papilla of Vater either by a spasm or a stone, something must be done to relieve the pressure in the ducts, that is, a cholecystostomy or a choledochostomy, is the rational operation. Archibald suggests drainage from three weeks to several months, or section of the sphincter of Oddi at the papilla, which at once reduces the possible pressure in the ducts to 60 or 70 mm. of water. Drainage of the biliary system for three weeks appears to be rational, as it gives the pancreas an opportunity to return to normal and permits any temporary condition which may have caused a spasm of the sphincter of Oddi to subside, but it is difficult to see what advantage longer drainage can be. It is not likely that drainage for a longer time can make a perma-

nent change in any condition which has caused the spasm of the sphincter of Oddi. If there is hyperacidity which has caused the spasm, the only rational treatment is section of the sphincter, suggested by Archibald, and treatment of the hyperacidity. But we are discussing the treatment of acute pancreatitis, and in the cases of acute hemorrhagic necrosis of the pancreas, the condition of the patient does not often permit any prolonged operative procedure. In such cases, the simplest method of drainage of the biliary system should be carried out, that is, cholecystostomy.

Archibald advises against any drainage of the capsule of the pancreas. He says that the shock associated with the disease is due to the products of digestion, and drainage would be of no value. We are opposed to this theory on the ground that many of these patients improve at once after drainage of the fatty capsule of the pancreas, or of the pancreas itself.

If we believe that retrojection of duodenal contents into the duct of Santorini may cause pancreatitis we have no method of drainage of the duct that will be effective; we must, therefore, depend upon drainage of the fatty capsule of the pancreas, or the pancreas itself.

Pierre Delbet¹⁵ suggests section of the common duct and a union of the gall-bladder with the small intestine. This would obviate any possibility of retrojection of bile into the pancreatic duct, but it is a procedure which very few of the cases of acute pancreatic necrosis could withstand.

The results of the various methods employed in 56 cases of acute pancreatic necrosis, collected from the records of the Massachusetts General Hospital and my own records, are as follows:

Total number of cases.....	56				
Total mortality				60.7%	
Mortality of pancreatic necrosis without the cases of abscess.....				72.3%	
OPERATION.	TOTAL NO.	SEVERE.	MILD.	DEATHS.	MORTALITY.
No Operation	6	6		6	100%
No Drainage or Drainage of Abd. Cavity	14	10	4	12	86%
Drainage of Pancreas including Abscesses	29	25	4	8	28%
Drainage of Pancreas without Abscess ...	20	18	2	11	55%
Drainage of Abscess alone	9	7	2	0	00%
Drainage of Biliary System	3	2	1	2	66%
Drainage of Biliary System and Pancreas	3	2	1	3	100%

There are six cases in which the biliary system was drained; in three the fatty capsule of the pancreas was also drained. The mortality of the group was 83 per cent. There were 20 cases of acute haemorrhagic necrosis of the pancreas in which the pancreas or fatty capsule of the pancreas was drained without any

other procedure, and the mortality was 55 per cent.

While this group of cases is small it seems to give some indication as to what should be done, and indicates that drainage of the fatty capsule of the pancreas, or the pancreas, gives better results than any other procedure. Drainage of the gall-bladder or, better still, the common duct if the condition of the patient will permit, may be and, at least theoretically, would be a valuable addition to drainage of the fatty capsule of the pancreas, or pancreas itself.

Archibald advises waiting on these patients until they have recovered from the shock, as he feels it is due to the absorption of split proteins, and operation will do no good. While this may be correct, theoretically, we are convinced, after operating upon a number of these cases, that operation the moment the patient's condition will permit, with novocain and gas oxygen anesthesia, will give far better results than waiting. The ideal operation would be drainage of the common duct, drainage of the fatty capsule of the pancreas, and pancreas itself. If the common duct cannot be drained easily, a cholecystostomy should be done instead, and if only little can be done, drainage of the fatty capsule of the pancreas alone should be done.

CONCLUSIONS.

1. Experimental and clinical findings lead us to believe that there are probably two types of acute pancreatitis, with quite different etiology.

a. Interstitial pancreatitis due to infection of the interstitial tissue, the infection coming frequently from the biliary system.

b. Pancreatic necrosis, a necrosis of the parenchymal cells, due to retrojection of bile into the duct of Wirsung or duodenal contents into the duct of Santorini.

2. The treatment of the interstitial type, due to infection from a cholecystitis, is cholecystectomy.

3. The treatment of pancreatic necrosis is drainage of the fatty capsule of the pancreas, and the pancreas itself. In addition, if the condition of the patient will permit, either the sphincter of Oddi may be cut, a choledochostomy or cholecystostomy done, depending upon the condition of the patient and the condition of the gall-bladder and ducts found at operation.

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- ⁴ Gulcke: Ergebn. d. Chir. u. Orthop., 1921, vol. 4.
- ⁵ Brocq: Compt. Rend. Soc. de Biolog., 1919, vol. 82, pp. 371 and 510.
- ⁶ Brocq (reported by Delbet): Bull. et Mem. de la Soc. de Chir. de Paris, 1914, vol. 40, p. 24.
- ⁷ Surg. Gyn. & Obs., 1919, vol. 28, p. 529.
- ⁸ Judd and Mann: Jour. A. M. A., July 16, 1921.
- ⁹ Deaver and Sweet: Jour. A. M. A., July 16, 1921.
- ¹⁰ Graham: Arch. of Surg., Jan., 1922.

¹¹ Graham Arch. of Surg., Jan., 1921.

¹² Margeret. Recherches sur la pathogenie des pancreatites infectieuses.

¹³ Whipple and Goodpasture. Surg. Gyn. & Obs., 1913, vol. 17, p. 591.

¹⁴ Nicoll: Brit. Med. Jour., 1919, vol. 2, p. 625.

¹⁵ Pierre Delbet: Bull. et Mem. de la Soc. de Chir. de Paris, 1914, p. 24.

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Original Articles.

THE INDICATIONS FOR OPERATION IN THE TREATMENT OF INJURIES INVOLVING THE BRAIN.

By DONALD MUNRO, M.D., BOSTON.

Assistant Out-Patient Surgeon, Boston City Hospital.

THE indications for operation in the treatment of injuries involving the brain are three:

First, a compounded fracture of the skull with injury to the brain.

Second, a depressed fracture of the skull involving either both tables or the inner table alone.

Third, and most important of all, an increase in the intracranial pressure.

Exclusive of the more or less specialized forms of fracture of the skull—the compound and the depressed varieties, I do not consider fracture *per se* an indication for operative interference.

Not infrequently the first thought and all of the attention of a physician who sees a patient who has received an injury to his head is devoted to determining whether or not there is present a fracture of the bony covering of the brain.

I wish to show that this is, except in the case of a compound or depressed fracture, a mistake that may cost the patient his life, or at least decrease his chances of recovery, and furthermore, that having obtained this information, the physician is no better off from the point of view of locating the injury than if he had made no effort in this direction at all.

Patients who have received an injury to the brain do not develop symptoms and do not die from the fracture which may or may not be present in the bones of the head. They do develop symptoms, and they do die as a result of the increase in the intracranial pressure which accompanies the fracture, or which not infrequently is present in the absence of any fracture.

COMPOUND FRACTURE.

The indications for operation in compounded fracture of the skull are clear. Just as in a compounded fracture of any other bone we have at the very least a potentially infected wound, and

steps must be taken to prevent this infection from spreading to surrounding clean tissues—in this case, of course, primarily the brain and meninges. Briefly, this may be best accomplished in the majority of cases by the process known as debridement, developed and used in the medical services of the allied armies during the war.

DEPRESSED FRACTURE.

In a depressed fracture of the skull it is important to remember that there may be a depression of the inner table of the skull alone, without a break in the contour of the outer table. Consequently, it is at once apparent that in these cases the X-ray examination of the skull becomes of greatest importance. I believe that more information may be obtained with less effort if stereoscopic plates in both anterior-posterior, and lateral directions are taken at once if possible. Of course, many times, with excited or restless patients this is impossible, but I believe that this should be the aim of the roentgenologist. These depressions should be either raised or, if that is impossible, removed.

This, then, briefly, covers the cases of injury to the skull and its contents in which the fracture in itself has any bearing on the operative treatment of the case.

INCREASED INTRACRANIAL PRESSURE.

Increased intracranial pressure as an indication for operation in the treatment of injuries of the brain is of paramount importance. The determination of its presence or absence should be the first information to be ascertained in any such case. Neglect of this all important information in the diagnosis, and a cloudy or mistaken conception of its relation to the future treatment and the present condition of these cases, I believe to be the one great factor that as late as 1916 kept the death rate in this class of case as high as 50 per cent.¹

To appreciate the importance of a pathological increase in intracranial pressure, it is necessary to have a knowledge of some of the more important points of the anatomy and physiology of the cerebrospinal fluid, its origin, distribution, and ultimate destination.

PRODUCTION AND DISTRIBUTION OF THE CEREBROSPINAL FLUID.

Magendie,² whose extensive researches in this subject were published between 1825 and 1842, was the first to appreciate the great physiological importance of this fluid. Through his investigations it was shown that not only are the ventricles and subarachnoid space normally filled with fluid, but that the fluid passes freely from one to the other of these divisions. Since that time many workers have added to our information in this field through chemical, intra-vitam staining, and experimental methods culminating finally in a series of experiments conducted recently by

Dandy³ at Johns Hopkins, and published in 1919 and previous years. It is not necessary to repeat here a detailed description of this work, but certain points should be emphasized. The cerebrospinal fluid is secreted by the choroid plexus practically in its entirety.^{2, 3} This plexus lies in the two lateral, the third and the fourth ventricles. From the lateral ventricles the fluid passes by way of the foramina of Monro into the third ventricle and receives its quota from the choroid plexus there. The fluid then passes through the aqueduct of Sylvius into the fourth ventricle and receives its quota from this portion of the plexus. From the fourth ventricle the fluid passes by way of the foramina of Magendie and Luschka to the cisterna magna, which in turn communicates with the entire cerebral and spinal subarachnoid space. Approximately one-half of the total quantity of cerebrospinal fluid is contained within the spinal subarachnoid space. The ventricles contain from 20 to 30 c.c.⁴

ABSORPTION OF THE CEREBROSPINAL FLUID.

This then is the method of production and distribution of the cerebrospinal fluid. We must now consider its absorption. In connection with this it is well to recall that the subarachnoid space lies beneath the arachnoid and above the pia, that this space closely invests every part of the central nervous system, and, owing to its relation to the pia, comes into intimate contact with the surface capillaries and many of the larger vessels of the entire brain and cord. From this great space the cerebrospinal fluid passes into the venous circulation either by way of a filtration process *via* the arachnoidal villi, or by diffusion into the capillaries of the subarachnoid space. The investigations of Key and Retzius, Renier and Schnitzler, Sicard and Cestan, Frazier and Peet, Mott, Dandy, and Blackfan, and others have definitely shown that the cerebrospinal fluid reaches the venous circulation, and that the lymphatic absorption, if any, is so slow and of such a small amount that it can be disregarded.⁵ The only point in question at this time is just what the channels are that the fluid passes through after leaving the subarachnoid space, and before reaching the venous circulation.

In brief then it can be said that the cerebrospinal fluid is secreted by the choroid plexus in the ventricles; passes from them by way of the foramina of Magendie and Luschka into the cisterna magna and thence is distributed over the entire surface of the central nervous system within the subarachnoid space, and in intimate relation with the pial vessels whence it is absorbed into the venous circulation.

INTRACRANIAL PRESSURE.

Normally the secretion of the cerebrospinal fluid is constant.⁶ Necessarily, therefore, the absorption must also be constant. As a corollary to these two facts the secretion must be carried on

at a sufficient rate to maintain pressure enough to promote absorption. This secretory pressure depends on two variable factors—first, the rate of secretion, and second, the rate of absorption. With a variation in either the rate of secretion or the rate of absorption, there will be a direct and resultant variation in the pressure. Normally this pressure, to which we can now give the name of intracranial pressure, varies with and is equal to the pressure in the venous sinuses.⁷ It depends upon the amount of cerebrospinal fluid present, and also upon the systemic blood pressure and respiration.⁸ Interference with the arterial circulation of the brain causes only a transitory lowering of the intracranial pressure, at once followed by a return to normal as would be expected. On the other hand, equally as would be expected, interference with the venous circulation, by impeding the absorption of the cerebrospinal fluid causes an immediate and more or less constant increase in the intracranial pressure.⁹ In view of the distribution of the cerebrospinal fluid it is apparent that any increase of intracranial pressure will have an effect upon the entire central nervous system, and more especially upon the cerebrum and medulla. That this must be so is clear when we recall that not only is this pressure exerted upon the more superficial aspect of the cerebrum and medulla through the subarachnoid space and cisterna magna, but also is exerted in a similar manner and to an equal extent upon the innermost surfaces of the cerebrum and medulla by way of the ventricles. The cerebrum and medulla, therefore, may be said to be subjected to a process of squeezing whenever the intracranial pressure is raised. The amount of squeezing and consequently the amount of damage to the delicate nervous tissue of the brain depends upon the amount of the increase in the intracranial pressure.

Here, then, is a possible source of injury to the brain and medulla the extent of which depends only upon the height to which the intracranial pressure rises. That this may cause the death of the individual subjected to this rise is obvious, especially when we take into consideration the fact that regulatory centres, upon the normal functioning of which the continuance of life depends, are located in the medulla. Furthermore, it is evident that any lesion which interferes with the normal cerebral venous circulation will give rise to this increase of pressure. Enumeration of the possible lesions that may cause this shows on the one hand how unimportant a relation a linear fracture of the bony coverings of the brain bears to this serious condition, and on the other hand how important and what a direct effect upon life such conditions¹⁰ as asphyxia, reflex disturbances of vasomotor control leading to acute congestion and oedema of the meninges, effusion of blood into the ventricles or between the meninges, or in the substance of the cord or brain, contusion and laceration of

the brain by contra-coup or direct violence, hemorrhage into the subarachnoid space, and other similar conditions may have. Treatment must be directed toward relieving this pressure. This may be done in one of two ways: first, by withdrawing some of the cerebrospinal fluid, and second, by allowing the brain more room to expand, or in other words by a decompressive operation upon the skull.

MEASUREMENT OF CEREBROSPINAL PRESSURE.

The ability to diagnose correctly this important and dangerous condition depends upon our ability to measure, first, the normal cerebrospinal pressure, and second, an increase in cerebrospinal pressure.

The normal cerebrospinal pressure has now been measured many times, and a variety of manometers have been devised for this purpose. The pressures recorded in the case reports below were measured by the mercury manometer devised by L. H. Landon while at Frazier's clinic in Philadelphia. Briefly, it consists of a U tube containing mercury, against one arm of which is set a millimeter scale for convenience in measuring the rise of the mercury columns. With the adult patient lying quietly on his left side with the entire spinal column horizontal and the top of the columns of mercury on a level with the needle, which is inserted as for an ordinary lumbar puncture, the normal pressure varies between 6 and 10 mm., and in the large majority of cases is in the immediate neighborhood of 8 mm.^{11, 20} New-born babies tend to have a somewhat lower reading than adults, but otherwise show no great variation. Any reading above 10 mm. Hg. is abnormal and is evidence of an increase in intracranial pressure.

OTHER SIGNS OF INCREASED CEREBROSPINAL FLUID PRESSURE.

Cases which are suffering from an injury to the brain, and in whom can now be demonstrated, by means of the spinal manometer, a definite rise in intracranial tension or pressure, also show certain more or less constant changes in the eye grounds, blood pressure, pulse rate and volume, temperature, respiratory rate, and reflex activities. These changes were previously considered to be indications which controlled absolutely the treatment of the case at any given time. They are still considered so in many clinics, and by some neurological surgeons are considered of more importance than the measurement by manometer of the intracranial pressure. I believe this to be a mistake, and within the last two months have seen one case with a rising pulse, normal blood pressure, and essentially normal reflexes, who showed at lumbar puncture a pressure of 30 mm. Hg., and at operation a large middle meningeal clot, and have known of another case in which a demonstrated pressure of 40 mm. Hg. was ignored and autopsy revealed a large subdural hemorrhage.

EYE GROUNDS.

Of all of these concomitant signs of pressure that of the eye grounds is the most constant and by far the most valuable. A small rise of pressure above the normal may dilate the veins of the retina, and cloud the nasal margin of the disc. A further rise will produce the classical choking of the disc.¹²

PULSE, BLOOD PRESSURE, ETC.

The changes in pulse, blood pressure, respiration and temperature, are themselves due to the rise in intracranial pressure, and indicate nothing more than successive stages in the increase in this pressure.^{1, 3} They are not directly connected with the injury and have no bearing upon the diagnosis, treatment, or prognosis of the case other than that indicating further pressure.

Given a case which has been struck sufficiently hard upon the head to produce symptoms, the least severe injury to the contents of the skull that could occur would be an irritation of the meninges. Injuries of greater magnitude would, of course, include laceration and contusion of the brain of varying extent, and massive intra- or extra-dural hemorrhages. In connection with this,¹⁴ Kolmer, writing in Frazier's "Surgery of the Spine and Spinal Cord," states that "as the result of acute inflammatory changes in the meninges, with great increase in the volume of fluid, this regulating mechanism (controlling the intracranial pressure and volume) is disturbed." In other words, more cerebrospinal fluid is secreted than is absorbed, and as a result the intracranial pressure rises. With an extensive injury to the brain surface itself, or with a large intra or extra-dural hemorrhage, we have also in addition to the meningeal irritation an actual blocking of a certain portion of the subarachnoid space. That is, a blocking of a part of the absorptive area. As a result of this we have an actual excess of cerebrospinal fluid. The brain being non-compressible and this fluid having no place to go stays within the residual subarachnoid space under a greater pressure. This pressure in its turn causes a more or less local cerebral anæmia and resulting cerebral venous stasis. This condition is spoken of by Sharpe^{15, 16} as the First Stage of Compression. The symptoms are headache, drowsiness, stupor, or possibly marked excitement. The retinal veins may be engorged. The manometric cerebrospinal fluid pressure is from 12 to 14 mm. Hg. Repeated lumbar puncture with withdrawal of sufficient cerebrospinal fluid to lower the pressure to normal will frequently cure patients in this condition.

The following will serve to illustrate the type of case referred to in the preceding paragraph:

J. A. W.—Male, 40, white, married; working as freight conductor. Seen May 10, 1921, in consultation with Dr. A. P. Lowell, Fitchburg, Mass. *Diagnosis:* Multiple Contusions and Abra-

sions, Contusion and Oedema of the Brain—probably contra-coup—with Subarachnoid Hemorrhage, Severe Concussion. *Treatment:* Cerebrospinal fluid drainage by lumbar puncture. *Discharged:* Cured. The patient was found unconscious on the floor of a caboose at 2.30 A. M., May 8, 1921. No history was available. Carried at once to Burbank Hospital, Fitchburg. On admission he had two generalized convulsions and was in considerable surgical shock with pulse about 120. Was also noisy, irrational, and very restless. May 9, 1921, condition improved. No further convulsions and patient quieter. His pulse dropped to 72, and he recognized his wife. This A. M. (May 10, 1921) pulse still dropping—around 44. Blood pressure 120. Seen at 3 P. M. when he was conscious and rational, but somewhat stuporous. Had a complete amnesia dating from at least one week previous to the accident and continuing to the present. Recognized his wife and sister, but did not know the day of week nor the month. Examination showed lacerated wounds of scalp and outer canthus of left eye and multiple contusions and abrasions over the body. Examination of the heart, lungs, abdomen, and bony skeleton is normal everywhere. *Urine* negative. *Neurological examination* shows no changes in either the *somatic* or *splanchnic motor* or *sensory* systems. The *cranial nerves* are all normal except for complete deafness in the left ear. *Eye grounds* are normal. There is no *ataxia*, *adiadokokinesis* nor *astereognosis*. The speech is thick, but otherwise not changed. Mentally he is dull and apathetic, but answers questions correctly except as above. There is a complete *amnesia* dating to one week previous to the accident and extending up to the present. *X-rays* of the skull show no fracture and no evidence of any intracranial pressure. *Lumbar puncture* showed a pressure of 14 mm. Hg. Sufficient fluid was withdrawn to reduce this pressure to 7 mm. Hg. without symptoms. The cerebrospinal fluid was colored and mixed with blood which evidently came from a subarachnoid hemorrhage higher up. Last seen on June 3, 1921, having been out of the hospital since May 29. On this former date had no symptoms of any sort and is to go back to work in a day or so.

G. W.—Male, 18, white, single; working as a lineman for an electrical power company. Seen May 16, 1921, in consultation with Dr. H. W. Ellam of Gardner, Mass. *Diagnosis:* Contusions of Neck, Shoulders, and Back—Lacerated Wound of Posterior Part of Scalp—Fracture of the Right Occipital and Parietal Bones—Subarachnoid Hemorrhage probably due to contusion of Cerebellum—Moderate Intracranial Hypertension. *Treatment:* Cerebrospinal fluid drainage by lumbar puncture. *Discharged:* Cured. May 15, 1921, while at work was struck on back of head, neck and shoulders by an "insulator" said to have weighed about fifty pounds. Taken at once to the hospital following the in-

jury. No loss of consciousness or memory at any time. Said to have been very talkative and excited immediately following the accident. On entering hospital temperature was 101 and pulse 120. A few hours after entrance became stuporous and vomited repeatedly, being unable to take any food. Today is somewhat better, but still unable to take food and complaining of nausea and dizziness on sitting up. Temperature now normal and pulse 72. *Physical examination* of heart, lungs, abdomen, and bony skeleton normal except for contusion of shoulders and back, and a lacerated wound of posterior portion of scalp. *Blood pressure* 130/70. *Urine* negative. *Neurological examination* shows no changes in either the *somatic* or *splanchnic motor* or *sensory* systems. *Cranial nerves* are all normal except for a moderate nystagmus of both eyes with the quick component toward the right, on extreme rotation of the eyes to the right. *Eye grounds* normal. There is a slight past-pointing toward the right with the right hand in the finger to finger and finger to nose tests. The left is normal. There is no *adiadokokinesis* nor *astereognosis*. *Mentally* he is alert and rational. No changes in his speech. *X-rays* of skull show a linear fracture of both tables of the skull about 1½ inches long running at right angles to and crossing the occipito-parietal suture at the junction of the lower and middle thirds on the right. *Lumbar Puncture* showed a pressure of 14 mm. Hg. About 5 cc. of cerebrospinal fluid was withdrawn which lowered the pressure to 6 mm. Hg. without producing any symptoms. This fluid was colored by blood from a subarachnoid hemorrhage higher up. When last heard from in November, 1921, this patient had been back at work and entirely without symptoms since early in June.

It is to be noted that in neither of these cases were there any reflex changes, nor other objective symptoms of any characteristic degree. One suffered from a severe concussion, and the other did not. One had a fracture of the skull, and the other did not. In both, however, the cerebrospinal fluid pressure was raised to an equal degree. There was a subarachnoid hemorrhage, and withdrawal of enough cerebrospinal fluid to reduce the pressure to normal effected a prompt cure in both cases.

The next stage in increasing intracranial pressure is spoken of by Sharpe^{17, 18} as the Ideal Operative Stage. In this stage the rising intracranial pressure causes a more extensive and complete cerebral anæmia. If the pressure is due to an extradural lesion, such for example as a middle meningeal hemorrhage, or a depressed fracture, the anæmia is more localized and we have symptoms due to the impairment of the particular part of the cortex underlying the lesion. Owing to the falx and the tentorium the majority of the pressure exerted by the extradural lesions is in this stage localized to one hemisphere, and the symptoms are not, therefore,

as grave, due to the fact that the medulla is protected. With an intradural lesion, however, the protection afforded by the falx and tentorium is of not so much avail, and consequently the medulla is included in the more or less generalized cerebral anæmia. The first effect of this anæmia on the medulla is said to stimulate the vagal nucleus, and does in any event produce a slowed pulse, and also a slight rise of the peripheral blood pressure due to stimulation of the vasomotor centres. The cerebral venous stasis is more pronounced, and the patient presents symptoms similar to those noted above, only more severe. Manometric readings of cerebrospinal fluid pressure are from 18 to 30 mm. Hg. Treatment consists of subtemporal decompression. Neither at this nor at any subsequent stage of increasing intracranial pressure should more than 1 cc. of cerebrospinal fluid be withdrawn by lumbar puncture for examination. To break this rule subjects the patient to the danger of a herniation of the medulla through the foramen magnum with resulting death.^{19, 21}

A. S.—Male, 39, white, married, proprietor of a grain store. Seen April 30, 1921, in consultation with Dr. Thomas Donovan, Fitchburg, Mass. *Diagnosis:* Linear Fracture of Left Temporal Bone—Rupture of Left Middle Meningeal Artery with Extradural Hemorrhage—Medullary Anæmia with marked Intracranial Hypertension. *Treatment:* Left Subtemporal Decompression. *Discharged:* Relieved. April 26, 1921, while moving a 250 pound bag of grain, a pile of similar bags fell over on top of him burying him beneath them. Taken at once to the hospital unconscious. On arrival there became conscious again, and then for a period became unconscious again following which he again became conscious but very stuporous. Speech has been thick at all times, and the stupor has been gradually increasing. Pulse has been constantly around 44, and temperature slightly elevated. Has complained bitterly of a severe frontal headache. April 30, 1921, patient became a little clearer mentally though still complaining of his headache, and still showing the same alteration in his speech. The pulse is now irregular, varying every few hours from 72 to 40. Temperature has risen to 100°. Respirations are normal in rate and character. *Physical examination of heart, lungs, abdomen and bony skeleton* is all normal. *Urine* normal. *Neurological examination* shows no changes in the *somatic or splanchnic motor or sensory systems* except for an ankle clonus on the right. *Cranial nerves* all normal. Eye grounds could not be successfully examined on account of the patient's restless condition. Apparently no ataxia. *Diadokokinesis* and *stereognosis* not tested. Mentally very stuporous and dull and difficult to arouse. Answers questions and obeys directions with only a moderate amount of success. *Speech* is very thick and slow and at times the patient is at a loss for a word that he obviously knows and wishes to use

but cannot. At these times he will substitute some other word sometimes synonymous and sometimes not. No attempt was made to have the patient read or write. He could not repeat a test sentence and evidently did not understand its meaning. Remembers nothing relating to the accident previous to his first night in the hospital. *X-rays:* thought previous to operation to be negative, but after the fracture had been located at operation it was possible, with the aid of a magnifying glass, to make out a line of fracture previously missed about ½ inch in length in the squamous portion of the left temporal bone. *Lumbar Puncture* showed a pressure of 30 mm. Hg. No fluid was withdrawn. *Operation:* Typical left subtemporal decompression through a muscle-splitting incision. Bony opening 3 inches in diameter extending from the level of the floor of the middle fossa of the skull. There was a large extra-dural clot evidently from a rupture of the middle meningeal artery although no bleeding point was found. As much of this clot as could be was removed. The dura and arachnoid were then opened and a moderate amount of cerebrospinal fluid under pressure was allowed to escape. Following this the pulse rose from 72 to 120, and the brain which had not been pulsating began to pulsate. The cortex was flattened and injected, but otherwise normal. Dura was closed with a rubber tissue drain between it and the brain on the floor of the middle fossa and the rest of the wound sutured with drainage through the upper end to the dura. The brain was pulsating normally with no sign of herniation at the end of the operation. May 5, 1921, patient now normal in every way. The decompression is entirely beneath the temporal muscle and well protected. All drainage is out. Last heard about in August, 1921, at which time he was back at work free from symptoms.

Should the intracranial pressure still rise, we have a stage in which the symptoms are those of compression of the medulla.^{22, 23} The anæmia of the medulla becoming more profound, this lack of blood acts as a stimulus to the vasomotor centre which in its turn raises the general arterial blood pressure, and slows the pulse, thus forcing more blood into the medulla and temporarily overcoming the anæmia until the intracranial pressure rises a little further and the process is repeated. In addition to this we have a gradual slowing of the respirations with longer and longer periods of apnea, finally becoming the typical Cheyne-Stokes type of respiration, probably resulting from anæmia of the respiratory centre. It is at this stage that we find the typical choked disc due to an oedema of the optic nerve. The symptoms of this stage then are rising blood pressure with dropping pulse of a full bounding character, and Cheyne-Stokes respiration. The patient is unconscious, and often all reflex activity is abolished. Manometric readings are always above 20 mm. Hg., and may reach

40 or even higher. Subtemporal decompression is imperative at this stage, and even in spite of this operation the patient may die. No patient should be allowed to reach this extreme stage of compression, and were the cerebrospinal pressure measured when the patient is first seen—provided he has recovered from the initial shock of the injury—no patient would reach this stage.

N. P.—White, male, 50, married, born in Greece; works in restaurant. Seen May 24, 1921, in consultation with Dr. R. F. Burns, Fitchburg, Mass. *Diagnosis*: Laceration and Contusion of Right Parietal and Temporal Lobes of Cerebrum,—Medullary Compression with extreme Intracranial Hypertension,—Fracture of Right Occipital and Parietal Bones extending into the petrous portion of the right Temporal Bone. *Treatment*: Right Subtemporal Decompression. *Discharged*: Relieved. Patient speaks no English, having been in this country only a few months and history was incomplete and more or less inaccurate. It is said that on May 19, 1921, patient fell down stairs striking his head against a barrel of cement. Was conscious following this, and able to ride to the hospital in an automobile. Was somewhat dazed and stuporous on admission, but this has cleared gradually up to May 23 on which day he tried to get out of bed, and appeared to be fairly bright. May 24 is not so well, and is again somewhat irrational and stuporous. The temperature has been always more or less elevated up to 101. Pulse has recently been gradually but continuously dropping. May 24 pulse was 65 and respirations were taking on the Cheyne-Stokes character. Physical examination of *heart, lungs, abdomen*, and *bony sykeleton* is all normal. *Blood Pressure* is 190/100. *Urine* shows a massive coagulation of albumin with fine and coarse granular casts but no blood. Neurological examination showed the following: *Somatic Motor*—both arms and the right side of the abdomen and right leg are normal in every way. The left abdominal reflexes and both cremaster reflexes are all absent. There is a flaccid paresis of most of the muscles of the left upper and lower leg involving especially the extensors of the thigh, the flexors and tibialis groups of the lower leg. The knee and ankle jerks are present and normal. Stroking the sole of the foot, squeezing of the calf or pressure over the inner border of the tibia elicits reflex motions affecting the toes of the right foot which fan with a plantar flexion of the great toe. Attempts at voluntary motion of the paralyzed leg show as corresponding motions in the other leg. *Somatic Sensory*: there is a diminution, and very probably a complete anesthesia, of the entire left lower leg from the knee down. There are no other sensory changes. *Splanchnic Sensory and Motor Systems* are normal. *Cranial Nerves*: examination of these nerves was unsatisfactory and incomplete owing to the patient's inability to co-operate, but the following definite changes were made out: The eye-grounds

showed a marked dilatation of the retinal veins, but no hemorrhage, and a definite choking of both discs. The first, eighth, eleventh, and the muscular portion of the fifth could not be examined. The other cranial nerves were all normal. *Diadokokinesis* and *Stereognosis* could not be tested. There was no bleeding from the nose, mouth, or ears, and no hemorrhage into either orbit. *Mentally* is very dull and frightened, and objects to having his right eye forcibly opened. *X-ray* shows a horizontal line of fracture, about 3 inches long running forward from the right occipital bone through the parietal, to end in the petrous portion of the temporal bone on this side. This is a linear fracture involving both tables, and is everywhere widely separated. *Lumbar puncture* showed a pressure of 28 mm. Hg. No fluid was withdrawn. *Operation*: Typical Right Subtemporal Decompression through a muscle splitting incision. Bony opening included all of the temporal bone beneath the muscle. Dura was not pulsating, dark blue in color, and very tense. Beneath the dura the brain was found moderately contused and lacerated and covered with old clotted blood. The cortex was flattened and injected, and the pial veins were enlarged in many instances to the size of a normal external jugular vein. There was practically no cerebrospinal fluid in the subarachnoid space exposed at operation. Attempts to puncture the lateral ventricle through the temporal lobe and the third ventricle through the corpus callosum were not successful. There was a moderate herniation of the brain, but no splitting of the cortex. Wound was closed in layers with rubber tissue drainage to the floor of the middle fossa between the dura and the brain. The patient left the table in some shock, but soon rallied, and had an uneventful convalescence. October 11, 1921, comes for examination. Complains of slight dizziness on stooping, but otherwise O. K. *Examination* shows a distinct muscular weakness of the entire left side of body with a diminution of pain and tactile sensation also in this area. There is no paresis or paralysis nor anesthesia, however, and patient walks about all right. There is marked *adiadokokinesis* of the left arm. The *cranial nerves* are all normal, and the eye grounds show nothing but a slight blurring of the nasal sides of the discs. The *decompression* pulsates normally, is not adherent to the skin, and lies entirely beneath the temporal muscle. Fills but does not bulge on stooping. To do light work in a week. *Blood Pressure* 199/125. Last heard about in December, 1921, at which time he was back at work with no complaints.

M. A.—Female, white, 41½ years. Seen July 18, 1921. *Diagnosis*: Extensive fracture of Occiput—Extreme Compression of the Medulla verging on Oedema, with extreme Intracranial Hypertension—Laceration and Contusion of the Brain. *Treatment*: Right Subtemporal Decompression. *Discharged*: Dead. Patient said to have

been struck by automobile while playing on the street, on July 16, 1921. Carried home unconscious, where she remained until admitted to the hospital July 18, 1921. Vomited considerably during this time. Seen on day of injury by a local doctor (unknown) who is said to have given no treatment, but to have endeavored to have X-ray plates made of skull. He was not successful in this until the afternoon of July 18, following which the roentgenologist, recognizing the gravity of the case sent the child to the hospital, where she was seen late the evening of the 18th. On admission the pulse was 110, temperature 102.4/10, and the blood pressure 110/70. Some hours previous to being seen, 10 cc. of cerebrospinal fluid had been removed by lumbar puncture, and this fluid was colored with blood from a subarachnoid hemorrhage. *Physical examination of heart, lungs, abdomen, and bony skeleton* is normal. There are multiple contusions over the body. The pulse is around 110, temperature elevated, and respirations distinctly slowed and beginning to show a Cheyne-Stokes character. The entire scalp is very boggy. *Blood Pressure*, 110/70. *Urine* normal. *Neurological examination* as follows: *Somatic Motor System*: all arm reflexes, abdominal reflexes, and ankle jerks are absent on both sides. The knee jerks are present and equal. The left arm shows a complete flaccid paralysis. *Somatic Sensory system* could not be tested on account of patient's condition. *Splanchnic Motor and Sensory systems*: normal except that the left pupil is widely dilated and fixed. The right reacts promptly to light. *Cranial nerves*: The examination was incomplete on account of patient's condition. There was a definite paralysis of the right sixth. Both facial nerves appeared to be normal. There was a marked choking of the left disc with dilated retinal veins, but no hemorrhages. The right disc could not be seen. *Mentally* the patient was unconscious and irrational, very restless, tossing all over the bed, and requiring constant watching, and restraint to keep her from throwing herself out of the bed on to the floor. She was noisy and cried and moaned constantly. *Lumbar puncture* showed a cerebrospinal fluid pressure of 40 mm. Hg. No fluid was withdrawn. *X-ray* not seen, but reported to have shown a linear fracture of the occipital bones, extending from above one ear and running around the back of the head to terminate beneath the opposite ear. *Operation*: Typical Right Subtemporal Decompression under local anesthesia. Muscle splitting incision and bony opening which included the entire squamous part of the temporal bone. On exposure of the dura it was found to be not pulsating, dark colored, and extremely tense. On wide incision considerable dark colored old fluid blood and clots escaped. The brain still did not begin to pulsate although there was no herniation and a successful attempt was made to enter the lateral ventricle with a blunt needle. Considerable bloody cerebrospinal fluid was drained off in this

way, slowly, following which the brain volume diminished, and the pulsations returned. Previous to this the cortex was flattened, injected, and the pial veins much enlarged. The portion of the brain exposed at operation had not been lacerated, and there was practically no cerebrospinal fluid in this portion of the subarachnoid space. Following the drainage of the ventricle the patient's pulse rose rapidly, became of poor quality and before the scalp could be entirely closed she died.

The first of these two cases exemplifies a severe type of brain injury treated late in the disease. The patient is again a useful member of society, and at present shows only a relatively small amount of permanent damage considering the severity of the injury, and the complicating diseases from which he suffered.

The second case is inserted as a contrast to the first, and because it exemplifies practically all of the mistakes in treatment that could possibly have been made in this type of injury. First: About sixty hours were allowed to elapse before a diagnosis was made, not to mention the fact that during this time no treatment had been instituted. This time was used to obtain relatively useless X-ray plates, which when obtained added nothing to the indications for or against treatment: Second: In a case obviously suffering from a high intracranial pressure 10 cc. of cerebrospinal fluid was withdrawn by lumbar puncture previous to any cranial decompression. This subjected the patient to the danger of immediate death from herniation of the medulla in the foramen magnum, and the fact that this complication did not arise is due to pure chance. Third: The operative procedure was badly planned. The operation of choice would without question have been a suboccipital decompression, and this was ruled out only because of the patient's poor general condition. As a substitute a subtemporal decompression was performed. This I believe now to have been bad judgment. While a much less formidable procedure than a suboccipital operation, nevertheless, in view of the fact that the child was verging on, if not actually suffering from, an oedema of the medulla, and consequently even from the most favorable view point only in a condition to stand the minimum of surgical interference, even a subtemporal decompression should have been recognized as being of too formidable a nature. Either the case should have been classified at once as a case of medullary oedema, and allowed to die without operative interference of any kind, or granting, as was thought at the time, that the patient was suffering only from an extreme degree of medullary compression, which had not as yet developed into an oedema of this portion of the brain, operative interference should have been limited to a simple ventricular puncture and drainage of the excess cerebrospinal fluid followed later on by either a subtemporal or suboccipital decompression, depending upon the

amount of improvement following the ventricular puncture.

I wish to stress particularly, however, that this patient was allowed to go sixty hours without treatment, and without a diagnosis, and that in consequence she passed through at least two stages of intracranial hypertension, during either of which she would have been a favorable subject for such operative interference as would have offered at the worst an even chance of recovery.

The final stage of increasing intracranial pressure is that in which there is an oedema of the medulla itself.^{24, 25} In this stage the regulatory centres of the medulla have become fatigued and the vasomotor stimulation will no longer raise the general arterial pressure sufficiently to force enough blood to the medulla to overcome the anæmia there. As a result the blood pressure drops rapidly while at the same time the pulse and temperature rise, the pulse becoming very weak and irregular, and the temperature reaching 105 and 106—the so-called brain temperature. The respiration also rises to 40 or beyond—oedema of the lungs develops, and the patient dies. In this stage nothing that can be done, no matter what it is, will save the patient. Consequently these patients should not be operated nor touched in any way; it merely hastens the end.

It can be seen from the above that the signs and symptoms—pulse, blood pressure, respiratory rate and mental state commonly used as indications governing diagnosis, treatment, and prognosis—all depend for their variations upon the basic factor of an increase in intracranial tension or pressure. If the intracranial pressure is measured, these subsidiary manifestations are not needed, and should not be regarded in any other light than as confirmatory evidence.

REFLEXES.

With regard to reflexes and their presence and absence, it is my opinion that they serve only as a guide to the point of maximum injury to the brain, and give us no indication whatsoever in regard to the patient's condition, and most certainly none in regard to the method of treatment.

BLOOD IN CEREBROSPINAL FLUID.

I have frequently heard it said that blood in the cerebrospinal fluid obtained by lumbar puncture means everything from a fracture of the base of the skull to a middle meningeal hemorrhage. I have further heard this referred to as an absolute indication, and also as an absolute contraindication to operation. Blood in the cerebrospinal fluid as obtained by lumbar puncture, providing it is not due to trauma from the puncture itself, means one thing and only one thing—namely—hemorrhage into the subarachnoid space. It has no bearing whatsoever on the line of treatment to be adopted. As a

matter of fact and experience, blood in cerebrospinal fluid obtained by lumbar puncture usually means a laceration of the brain providing the injury has been to the head.

OTHER SYMPTOMS.

Bleeding from the nose, mouth, and ears is often considered important from the point of view of treatment. This is not so. In the first place extra-cranial lacerations of these cavities must be ruled out. Having done that—and it is surprising how often this simple complication to a head injury will occur—bleeding from the mouth is practically always due to bleeding from the posterior part of the nose, the blood having dropped into the back of the mouth instead of running out through the nostrils. Bleeding from the nose means usually a fracture through the cribriform plate, and indicates nothing except that the prognosis should be extremely guarded on account of the liability to meningitis. This is due to the extension of infection through this fracture from the septic cavities of the nose and mouth. Scrupulous care should be taken to prevent this if possible. Bleeding from the ear may mean a fracture of the petrous portion of the temporal bone, and may carry with it injury to the seventh and eighth nerves on this side, possibilities that should be carefully looked into at the time the patient is first seen. Otherwise this symptom indicates nothing in the line of treatment, and directly affects the prognosis only in so far as to offer the possibility of a basal meningitis arising from neglect to keep the ear clean.

SURGICAL SHOCK.

Any patient who has received an injury to the head severe enough to produce symptoms is in a state of surgical shock immediately following the injury. The condition and appearance of these patients in no way varies from that seen in a patient suffering from surgical shock following other severe injuries. Until these patients recover from this condition of shock, it is of no importance what other complications they may be suffering from. They must have immediate and careful treatment for their shock. This includes absolute quiet and rest together with warmth and fluids. If they are to have absolute quiet and are to be kept warm that means than an extensive neurological examination and a lumbar puncture cannot be done. Neither of these examinations should be carried out at this stage. If the patient will not recover from the surgical shock it is of no importance to treat his lacerated brain. On the other hand, if and when he does recover from his shock, then there will be plenty of time to treat his lacerated brain without exposing him to unjustifiable risks. Patients who have been subjected to severe head injuries usually recover from their shock in from two to eight hours depending on the extent of the injury, or else they have been so severely injured that they do not recover at all.

Careful observation of this rule in treating trauma to the head will save many patients who are now killed by too precipitate operating while they are still in a badly shocked condition.

An increase in intracranial pressure, then, is of paramount importance as an indication for operation in injuries involving the brain. From the foregoing we learn that there is a normal intracranial pressure of from 6 to 10 mm. Hg., depending upon the existence of a normal relationship between the secretion and absorption of the cerebrospinal fluid. The cerebrospinal fluid is secreted by the choroid plexus, and distributed for absorption throughout the spinal and cerebral subarachnoid space. From this space it is chiefly—in fact almost wholly—absorbed into the venous circulation. A rise in intracranial pressure occurs when either the rate of secretion is increased, or the rate of absorption interfered with. A rise in the pressure of the cerebral venous circulation interferes with the rate of absorption of the cerebrospinal fluid. This rise may be produced in a variety of ways varying from a more or less temporary congestion of the meninges, to large extra or intra-dural blood clots, and subarachnoid, subpial, or intra-cortical hemorrhages. Depending upon the location and extent of these hemorrhages, localizing symptoms, such as reflex changes, paralyses, etc., may be produced. Depending on the amount of increase of the cerebrospinal pressure systemic symptoms involving the pulse and respiratory rates, blood pressure, changes in the eye grounds, and mental state may be produced. All of these objective symptoms are inconstant and variable, and the determination of their degree cannot be carried out with any accuracy. The degree of rise of intracranial pressure, on the other hand, can be measured with absolute accuracy, and the amount of the increase above the normal gives a constant and invariable indication as to what operative procedure must be undertaken to correct the intracranial pathology. Intracranial pressure as measured by the Landon Spinal Manometer, reading above 10 and below 16 mm. Hg. calls for repeated lumbar puncture with drainage of sufficient cerebrospinal fluid to reduce the pressure to normal. Readings above 16 mm. Hg. call for decompression, preferably subtemporal. No individual suffering from an injury to the brain should be either treated or examined while in a state of surgical shock, and no such patient who can be demonstrated to have reached the final stage of intracranial hypertension—namely oedema of the medulla—should be operated upon, as the mortality in this latter class of case is 100% regardless of the treatment instituted. It is dangerous and often fatal to postpone treatment on a patient suffering from intracranial hypertension until X-rays of the skull are available. They can give no pertinent information that is not already at hand, and have no bearing on the operative indications of the case.

CONCLUSIONS.

1. The indications for operation in injuries involving the brain are three: compound fracture of the skull, depressed fracture of the skull, and a rise in the intracranial cerebrospinal fluid pressure.
2. The intracranial cerebrospinal fluid pressure depends on the relation between the secretory powers of the choroid plexus and the absorptive powers of the cerebral venous circulation.
3. Intracranial hypertension may and often does cause death in the absence of any injury to the bony coverings of the skull.
4. All cases that have received or that are suspected of having received an injury to the brain, no matter how slight, should, as soon as they have recovered from their surgical shock, have the pressure of their cerebrospinal fluid measured, and the treatment should be based primarily upon this finding alone.

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CONCERNING THE TYPE OF INJURY TO RENAL EPITHELIAL CELLS WHICH INCREASES THE SUSCEPTIBILITY OF THE CELLS TO THE ACTION OF THE GENERAL ANESTHETICS.

By WM. DEB. MACNIDER, M.D., CHAPEL HILL, N. C.,
The Laboratory of Pharmacology of the University of North Carolina.

SEVERAL years ago certain studies^{1, 2} were made concerning the relative toxicity of uranium nitrate in animals of different age periods. The observation was made that uranium nitrate, when given in a constant quantity per kilogram, was more toxic for old animals than for young animals and puppies. There occurred in

the old animals a more marked disturbance in the animals' metabolism and, furthermore, the kidney injury in the old animals was of a severer type than could be demonstrated in the kidneys of young animals and puppies. The characteristic difference in the pathology of the kidney in these animals of different ages was the amount of stainable lipid material which appeared in the renal epithelium. The puppies and young dogs showed stainable lipid material in the form of dust-like particles and small droplets in the epithelial cells of the loops of Henle, while the older animals showed large droplets and fused masses of such material in this location and also much stainable lipid in the highly specialized secretory cells of the convoluted tubules.

In later publications,^{3, 4, 5} there has been shown to occur a marked difference in the ability of the animals of the two age groups to form urine and to respond to various diuretic solutions when the animals of the different age periods had been poisoned by uranium nitrate and anesthetized by ether, chloroform or by Gréhaud's anesthetic. The young animals and puppies, during a period of anesthesia which lasted from one hour to two hours and forty-five minutes, formed urine and, furthermore, the kidneys of these animals remained responsive to the stimulation of various diuretic solutions as caffeine, theobromine and theocin. The group of old animals, on the contrary, during a similar period of anesthesia, either formed less urine per minute or urine formation ceased. In such animals the urine-forming value of the above-mentioned diuretic solutions was negative. That part of the kidney mechanism on which these substances act failed to respond to the stimulation. This lack of response on the part of the kidney is not due to any failure in the systemic blood pressure of the anuric and non-responsive animals, nor is it due to any lack of response on the part of the peripheral vascular mechanism of the kidney to these solutions. The pathological changes in the kidneys of the anuric animals, which differentiates them from the kidneys of the young animals that form urine and respond to diuretic solutions, is found in the renal epithelium. In the former group of animals, in which the use of uranium had led to a marked accumulation of stainable lipid material in the epithelium, the anesthetic has induced changes leading to the death of these cells. In the puppies and young animals in which, following the use of uranium, there was less accumulation of stainable lipid in the epithelium, the changes of degeneration following the anesthetic are either absent or slight in extent. Death of the cells does not occur.

In more recent investigations^{6, 7, 8} studies have been made of the amount and distribution of stainable lipid material in the renal epithelium of naturally nephropathic dogs, and of the susceptibility of the kidneys of these animals

to the general anesthetics. These studies have shown that the primary injury to the kidney in such animals takes place in the glomeruli, the tuft of capillaries located at the site of origin of each uriniferous tubule. The injury to these structures results in the formation of connective tissue between the capillary loops, the walls of which become thickened and finally obliterated. The earliest evidence of injury which can be detected in the renal epithelial cells lining these tubules is an accumulation of stainable lipid material in the cells of the loops of Henle and, especially, in the secretory cells of the convoluted tubules. When kidney tissue from such animals, stained for lipid material, is compared with kidney tissue from normal animals that serve as controls, the difference in the amount and location of the stainable lipid material is striking. In the kidneys of normal animals such material is only found as dust-like particles and droplets in the loops of Henle. It has not been demonstrated in the convoluted tubule epithelium. In the naturally nephropathic animals stainable lipid material is found in the loops of Henle as large masses, which may be of such size as to obscure the structure of these cells, and such material is, furthermore, found as granular particles and droplets in the convoluted tubule epithelium. Following the establishment of this difference in the amount and location of stainable lipid material in the renal epithelium of naturally nephropathic animals, as contrasted with the stainable lipid content of renal epithelial cells in normal animals, both types of animals were anesthetized by ether or chloroform in order to ascertain if any relationship existed between the amount of lipid material in the renal epithelium of the kidney and the susceptibility of these cells to the action of the anesthetics. The normal control animals of these experiments have continued to form urine during the period of anesthesia, and when the kidneys were subjected to the action of such diuretic solutions as caffeine, theobromine, 5. per cent. glucose and 0.9 per cent. sodium chloride solutions, there developed an increase in urine formation.

The naturally nephropathic animals that were anesthetized by the same anesthetics for the same length of time have shown a marked decrease in urine formation as compared with the control animals or they have ceased to form urine. When such animals are given the above-mentioned diuretic solutions, the solutions are found to have less effect than they have in normal animals. In those naturally nephropathic animals that were rendered anuric by the anesthetics these solutions are ineffective. No urine formation occurs. A histological study of kidney tissue obtained from the two groups of animals shows that the renal epithelium in the normal control animals has been unaffected by the anesthetics. The cells show no distinct evidence of degeneration. The renal epithelium

in the naturally nephropathic animals, which was shown to contain a great increase in the amount of stainable lipid in comparison with the normal epithelium, has shown, following the period of anesthesia, marked degeneration characterized by edema, vacuolation and death.

From the foregoing analysis of the experimental data presented in this paper, the following summary appears allowable.

The earliest evidence of injury to renal epithelium which is induced by uranium nitrate consists in an increase in the amount of stainable lipid material in these cells. The amount of such material that accumulates in the epithelium is influenced by the age of the animal. In old animals there is a greater accumulation of such material in renal epithelial cells than occurs in young animals and puppies. When animals from these age groups are anesthetized by chloroform, ether or by Gréhant's anesthetic, the severity of the action of the anesthetic on the renal epithelium shows a parallel with the amount of stainable lipid material that can be demonstrated in such cells prior to the use of an anesthetic. The kidneys of old animals, in which the use of uranium has resulted in a marked accumulation of stainable lipid, show very marked changes of degeneration from the use of the anesthetics. The kidneys of the young animals and puppies, in which less stainable lipid has accumulated in the epithelium, show little or no injury from the anesthetics.

A study of the kidneys of naturally nephropathic dogs indicates that the primary injury to the kidney develops in the glomeruli. The earliest evidence of the secondary injury to the renal epithelium consists in a marked accumulation of stainable lipid material in these cells and, especially, the secretory cells of the convoluted tubules. When such naturally nephropathic animals are anesthetized by chloroform or ether, and the effect of these anesthetics on the kidney is contrasted with the effect of the same anesthetics on the kidneys of normal control animals, a parallel is found between the toxic action of the anesthetics for the two groups of animals and the amount of stainable lipid that can be demonstrated in the renal epithelium. In the kidneys of the naturally nephropathic animals, in which the amount of stainable lipid has greatly increased in the renal epithelium secondary to the glomerular injury, the anesthetics induce an early degeneration and death of these cells, and urine formation is arrested. In the normal control animals, in which only a small amount of stainable lipid can be demonstrated in the loops of Henle, such degenerative changes do not occur, and these animals form urine during the period of anesthesia.

Some twenty years ago Hans Meyer^{9, 10} and Overton¹¹, working independently, developed a theory, the so-called Meyer-Overton Law,

which is used to explain the entrance of certain narcotic and anesthetic substances into the cells of the central nervous system. These investigators were able to show that the affinity which the methane group of anesthetic substances possessed for the central nervous system was dependent upon the partition coefficient of these substances between the watery blood plasma and the lipoids of these cells. As the solubility of the anesthetic substance increased for the lipid material of the cell it became of greater anesthetic value.

From the observations which have been made in the present study concerning the stainable lipid content of renal epithelial cells, the Meyer-Overton Law would appear to apply to cells in this location as well as in the central nervous system. The investigation indicates that, following the accumulation of lipid material in the renal epithelium, these cells, on account of their increased lipid content, take up more of the anesthetic substance than do normal cells and, as a result of more of the anesthetic substance entering the cells, degenerative changes develop which impair or suspend the function of these cells. A definite relationship exists between the amount of stainable lipid material in renal epithelial cells and the susceptibility of the kidney to the toxic effect of the methane group of anesthetic substances.

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ACUTE PUERPERAL INVERSION WITH THE REPORT OF A CASE.*

By JOSEPH P. COHEN, M.D., BOSTON.

IN perusing the statistics of the incidence of acute puerperal inversion in the literature, the casual reader may be led to believe that it need only be given academic thought. But the one bit of enlightenment these figures should afford

*Read by invitation before the Boston Obstetrical Society on October 25, 1921.

us is their lack of uniformity. In addition to this there appears to be a strong inclination on the part of authorities to believe that there are a number of cases which probably have occurred and still do occur that are not reported because of the culpable manœuvres inciting inversion. This is particularly true of the private practice of obstetrics done by untrained men and unskilled midwives among whom, should the patient succumb, death is probably attributed to another superimposed condition and the true situation not brought to light. This is, of course, a misfortune, the correction of which can only be carried out by educational methods and the recognition that acute puerperal inversion may result in the best hands and despite good care. Prompt diagnosis is of first importance; once this is accomplished, proper treatment should be instituted.

The following table shows the significance of the irregular incidence of acute puerperal inversion:

TABLE

Jardine	1 in	17,000 cases
Winckel	0 in	20,000 cases
Braun	1 in	250,000 cases
Denham	1 in	100,000 cases
Beckman	0 in	250,000 cases
Madden	1 in	190,000 cases
Jones	1 in	127,000 cases
Kehrer	1 in	2,000 cases
Ahlfeld	1 in	100,000 cases
Zangemeister	1 in	400,000 cases
Welponer	1 in	35,000 cases
Ferri and Lorini	1 in	1,440 cases
Engelmann	1 in	5,000 cases
Chetenham District Assoc.	1 in	6,300 cases
Aveling	1 in	100,000 cases
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Total,	13 in	1,603,740 cases
Average,	1 in	123,364 cases

Inversion of the puerperal uterus may take place immediately after labor or hours afterward. Macfarlane¹ declares the condition may arise as late as the fifth day postpartum. It may synchronize with the delivery of the placenta or it may come about after the third stage is completed.

Inversion may be partial or complete. It may be recognized very early as a mere cup-shaped depression in the fundus² or as an indentation which has approached only as far as the external os of the cervix; or it may not be discovered until the entire body of the uterus is turned inside out with the cervix shutting down on the lower segment of the uterus. The most extreme result is the inversion of the vagina along with the uterus: in these cases the entire uterus lies outside the vulva and drags the vagina with it.

ETIOLOGY.

The etiology of acute puerperal inversion is assignable ordinarily to two factors: pressure

from above and pulling from below, though these do not account for the spontaneous types of inversion which are produced independently of surrounding conditions and form a definitely recognized entity. Improper employment of Credé's method of expressing the placenta appears to be one of the common causes. Either the manœuvre is carried out while the uterus is in a state of relaxation or else before the placenta has had time to separate. Engelmann³ emphasizes that Credé of the uterus with one hand may be done improperly, and mentions the technique laid down by Credé himself, who states that it is wise "to await the contraction of the uterus, then seize it so that the fundus lies in the hollow of the hand and the five fingers on all sides of the corpus, after which gentle pressure is exerted." Engelmann goes still further, stating that, except in those cases where the uterus is very small, he deems it expedient to employ both hands in executing the Credé manœuvre and by doing so, distributes the pressure evenly throughout the uterus and minimizes the possibility of indentation from a thumb or one finger. He urges that compression should not be exerted at the same place each time the Credé is attempted.

It is my personal belief that the expression of the placenta during the third stage of labor is so important that it should never under any circumstances be entrusted to a nurse or inexperienced assistant. The third stage of labor should be cared for entirely by the physician. There has been a tendency to pass the responsibility of the delivery of the placenta to the nurse, who may not only be unfamiliar with the correct method to employ in expressing the placenta, but who, not infrequently, does not know how to "follow the fundus" or, if she does, is unable to appreciate what is taking place during relaxation or contraction. I have, therefore, made it a rule to insist upon the management of the third stage of labor by the skilled assistant and where this has not been feasible, I have taken the responsibility in my own hands.

Townsend-Whitling and Glover⁴ report a case of complete inversion of the parturient uterus which took place thirteen hours after a normal delivery and three hours after the efforts of a nurse to expel a clot from the uterus. This brings to my mind another teaching which is not without pernicious character: I refer to the encouragement often given a nurse to knead a uterus which does not contract well, to force clots out of the uterus by compression of the fundus. It is far better to watch the uterus by following it with the palm of the hand than to manipulate it vigorously. More ice, ergot and pituitrin should be employed postpartum to control a relaxed uterus and less manipulation.

The erect posture during labor and a short cord are predisposing causes of inversion.

Dighton and Collins⁵ report a case of inversion occurring after the normal delivery of a child with the cord wound about the neck, trunk and extremities. It seems that a case such as this would suggest that great care should be exerted in slipping the cord over the head when the cord is about the neck of the fœtus. In this connection there should be less hesitation in overcoming this cord difficulty by severing the cord between two clamps before delivery is completed.

Deliberate traction on the cord from below is generally acknowledged an obstetrical crime, and so the manœuvre is probably rare. Despite this, it remains as an important mechanical factor in some cases of inversion. Von Næcke's case⁶ was the result of attempted removal of an adherent placenta. In Culbertson's case⁷, inversion was discovered on the third day postpartum. The placenta had been removed manually an hour after delivery because of severe bleeding, and the uterus packed. The fundus had been felt definitely above the symphysis. Despite this fact, the inversion followed the removal of the packing on the third day.

Spells of coughing or sneezing, and pressure on the fundus by the straining abdominal muscles of the patient have been mentioned as causes of inversion.

Von Micholitsch⁸ is of the opinion that puerperal inversion, excepting the spontaneous type, can only occur with a completely relaxed uterus. H. W. Yates⁹ believes that a localized atony or thinness of the uterine walls is a factor requisite for the production of inversion. He adds that the exciting causes are fundal implantation of the placenta, the presence of submucous fibroids during pregnancy and the weight of a large placenta, particularly when situated at the fundus. Berkeley and Bonney¹⁰ are convinced that unusual laxity of the wall of the uterus is essential in all cases of inversion, and Shears¹¹ is equally firm in the conviction that a well-contracted uterus cannot become inverted.

Engelmann³, who reports having seen two cases of acute puerperal inversion, believes there is a certain significance to the occurrence of both cases in war time. He declares that the famine years increased the disposition of the uterus to atony and quotes a table of figures to show that there was a greater tendency to uterine hemorrhage in the years 1918-19 than in 1913-14.

On the other hand, Beckman¹² has made a careful study of the literature, and has been impressed by the relatively high percentage of spontaneous inversions that have occurred in which the uterine wall, though well contracted, has suddenly vanished under the hand. He states that Küstner, Leopold and Pulvirenti have confirmed this observation.

In the consideration of the etiology of acute puerperal inversion, it is interesting to note the manner in which inversion may take place.

There is the fundal method of inversion due to an indentation produced in the fundus of the uterus from mechanical pressure exerted at this point or from an inherent relaxation at the placental site when the placenta is so situated. Once this indentation occurs, it assumes the same relationship to the rest of the uterus as a foreign body or tumor which the uterus endeavors to extrude. Jones¹³ of Chicago makes the reasonable supposition that practically all cases of inversion begin at the fundus, because it is this area of the uterus which is exposed to most of the forces contributing to the production of inversion. James L. Huntington¹⁴ is of the opinion that fundal implantation of the placenta is the most likely condition to produce inversion, and believes the view is strengthened by the rarity of this placental situation.

There are two other theories used to explain inversion. Lateral inversion is a possibility that must be borne in mind, although this is probably the rare type of inversion; I could find no cases in the literature that definitely suggested this method of inversion. Still, it is conceivable that lateral inversion may take place with one side of the uterus starting to invert and the fundus following. The third method of inversion was recognized by Aveling¹⁵, and had a great deal of ardent support from I. E. Taylor¹⁶, who believed that a majority of acute spontaneous inversions of the uterus took place by the cervical route; it was Taylor's idea that, as a result of the paralysis of the cervix brought about after delivery, the cervix would not shut down. The body of the uterus, contracting against the relaxed cervix, rolled out the anterior and posterior lips and descended through this collar. Of recent years this method of inversion has been mentioned but little in the literature. It should be given serious thought, however, when we consider the cases reported as spontaneous inversions during the progress of which the fundus has been made out from above without evidence of indentation.

Von Micholitsch⁸ believes that though the fundal type of inversion is most common, yet inversion may take its origin at any other parietal region of the uterus. The spontaneous type of inversion is most apt to be cervical, according to this same writer. He is in substantial agreement with Taylor in the belief that there is an invagination of the contracted body of the uterus into the paralyzed cervix, difficult labors predisposing to this paralysis.

In 1884, J. C. Reeve¹⁷ observed that in inversion of the uterus of the cervical type there is first a pouting of the cervix and then an eversion of the lips followed by a rolling out of the body of the uterus. This, too, is in agreement with I. E. Taylor. Crosse¹⁸ as early as 1845 states that the evidence points to inversion commencing at the superior portion of the uterus—usually the fundus—still "it would appear very possible, in a mechanical view, to find the progress of the

displacement to be from the cervix to the fundus."

SIGNS AND SYMPTOMS.

Shock and hæmorrhage—one or both—and occasionally sudden, sharp, severe pain constitute the triad of signs and symptoms that usher in inversion. A feeling of something descending in the vagina may be noted by the patient. But there are cases in the literature where all these significant symptoms have been absent. Knipe's¹⁹ patient, who had a spontaneous inversion immediately after a normal delivery, suffered from neither shock nor hæmorrhage, and reposition was readily done without the administration of an anæsthetic or without great distress to the patient. According to Kerr²⁰, a case is related by Galabin in which there were no symptoms whatever either immediately after delivery or during the puerperium: the condition was only recognized after lactation had ceased and irregular hæmorrhages occurred.

Inversion must be kept constantly in mind in all cases of unexplained hæmorrhage, and should be verified by bimanual examination. In the fundal type of inversion, an indentation may be discovered in the uterus by palpation, or, if the inversion is complete, by a recognition of a deep depression in the pelvis which has taken the place of the fundus. In the cervical type, the characteristic convexity of the fundus will be noticed in the early phase of the inversion, and at this time there may be present only what appears to be a thickened cervix.

TREATMENT.

In the consideration of the treatment of inversion, immediate replacement by taxis from below is the general rule. The taxis should be begun at the cervical end of the inversion, and care must be taken not to employ too much force for fear of rupturing the uterus²¹. Pressure must be conducted to conform with the curve of the sacrum, otherwise the object of reduction will be defeated. The danger of rupture is diminished by exerting counter-pressure on the abdominal wall with one hand. Bad results in some cases have been due apparently to attempted reduction without the administration of an anæsthetic. This is important because of the added shock which may accompany reinversion. Dinnick²² favors the reduction of acute inversion by the abdominal route; in his case, reported in the Proceedings of the Royal Society of London, intestinal obstruction was found complicating the inversion. Since there is a tendency to acute retention of urine, it is well to be certain the bladder is empty before attempting any procedure which aims at reduction.

It occasionally happens that the cervix shuts down on the neck of the inverted organ so as to defeat all efforts at reduction. Occurrence

of gangrene may result under these circumstances and hysterectomy be required. Dilation of the cervix in cases of constriction, either by the abdominal route or from below, has not been very successful because a good deal of shock is thus produced. The employment of the Küstner operation, which entails an opening across the posterior cul-de-sac and a slitting of the posterior lip of the cervix, is best adapted to subacute or chronic inversion rather than the acute type. Reinversion is accomplished by this method after the posterior wall of the uterus is slit longitudinally. Spinelli's procedure is an adaptation of the Küstner operation; the anterior cul-de-sac is opened transversely, the bladder pushed out of the way and the anterior lip of the cervix split, after which the anterior wall of the uterus is divided in the median line within a centimeter or two of the fundus. After reinversion the uterine body is dragged through the cul-de-sac opening and the uterine incision closed with interrupted sutures; the uterus is then returned through the cul-de-sac incision, which is closed except at a point to allow for the introduction of a small wick for drainage. Like the Küstner operation, the Spinelli technique is best employed in chronic inversion.

Sometimes, immediate replacement may be unwise²³. This is true where the condition of the patient is precarious enough to indicate that further manipulation may prove fatal. According to Engelmann³, Zängemeister is of the opinion from his own experiences and accumulated data, that the shock should be the first thing to combat; he believes that immediate operation for replacement only too often will cast the chance for life on the wrong side of the balance. He has preferred to wait a period of hours before the possible shock of reposition is thrust upon the patient. The cases reported in which late treatment was carried out are impressive. G. E. Shoemaker²⁴ mentions a successfully treated case of acute inversion in which it was decided to take care of a frankly septic uterus by constant irrigation with boric acid before replacement was attempted. Barrie and Donaldson²⁵ have also told of a case where hæmorrhage during acute puerperal inversion was treated by the administration of ergot and pituitrin and the hot vaginal douche. Transfusion was then done, and the septic element which developed on the third day postpartum was treated by continuous irrigation with 1 to 4000 potassium permanganate solution. Reposition was done seven weeks later with the Aveling Repositor, and was accomplished in nineteen hours.

It is my own opinion that, in the long run, immediate replacement is the procedure of choice, since in a certain number of cases there is no shock from reposition and because it is the safest way to check hæmorrhage. In addition, according to modern notions, sepsis can be cared for after reduction and the danger of a

possible gangrene of the uterine body, resulting from the constriction of the cervical ring, is removed.

PROGNOSIS.

The mortality rate of acute puerperal inversion is quoted as low as 14 per cent. and as high as 80 per cent. An average of 45 per cent. is probably fair. Hæmorrhage, shock and sepsis may all together cause the fatal result or only one of these factors may cause death.

CASE REPORT.

Mrs. S. R., a primigravida 21 years old, was delivered by low forceps six hours after labor began. Her condition was splendid all during labor, but the vigorous character of the second stage disturbed her so much that it was deemed fair to apply low forceps, especially since the head was in sight. Delivery was accomplished without untoward incident. A slight second-degree tear of the perineum was repaired with catgut. A half-hour later the placenta was delivered by Credé's method; I personally took care of the expression of the placenta. There was no unusual difficulty in accomplishing this, and the uterus relaxed and contracted in a normal way. In the removal of the placenta, it was observed that only half of the membranes were present, but as there was no undue bleeding it was decided to leave them alone. The patient was put back to bed with a fair pulse, rate 120.

Five hours after delivery I was called to the hospital because the pulse was rising and bleeding was more than usual. There was no evidence at this time of shock. I decided that probably the membranes that were left in the uterus were accounting for the hæmorrhage and, after bimanual examination, determined to explore with the large dull curette, since the cervix was shut down and I felt that dilating the cervix for digital exploration might produce more shock. The fundus felt low and not very well contracted. Ergot and pituitrin had been administered. On inspection, what I at first took to be cervix, was probably a beginning rolling out of the body of the uterus which was taking place by the cervical method of inversion. Introduction of the curette was done with little force. The depth to which the curette reached, led to the suspicion of perforation and the instrument immediately withdrawn. It was decided to pack the vagina, leave the patient temporarily alone and treat her for shock which at this time had become marked. Hæmorrhage prior to packing was profuse. The pulse was thready. Blocks were placed at the foot of the bed and morphine administered. The advisability of transfusion was considered, though it was believed that shock rather than hæmorrhage was the predominating feature. Everything was prepared for transfusion, however, and a group four donor was secured as this

was found compatible with the blood of the patient. It was about nine hours later, on bimanual examination, that uncertainty was set aside and a definite diagnosis of inversion was made. The added possibility of perforation made it seem desirable to reduce the inversion by the abdominal route. The patient was practically pulseless at the time, with the heart rate 150 at the apex. Upon opening the abdomen, a complete inversion was observed with the cervical end of the uterus shut tightly down upon its body. Allis forceps were applied to either side of the uterine wall, and the body was gradually reinverted by alternating traction. No particular difficulty was encountered. After reinversion, there was discovered the evidence of a small perforation about one centimeter from the left tube, the site through which the curette had passed. There was no undue bleeding, so the perforation was just closed by two deep catgut sutures and peritonealized. The uterus was hard. A small wick was introduced through the abdomen leading to the site of perforation and the abdominal wound then closed in layers up to the exit of the drain. While the fascia was being sutured the patient was transfused by the Vincent tube method, receiving about 750 c.c. of blood. This proved palliative for both shock and hæmorrhage. The patient stood the operation very well. She was put back to bed and further treatment for shock carried out. The quality of the pulse was now quite satisfactory. There was no complaint of pain at any time. Evidence of sepsis developed in twenty-four hours but remained localized. The lochia was foul and the uterus tender. There was no nausea or vomiting at any time and very little distention. The drain was removed on the fifth day.

On the ninth day after delivery, the patient had a chill which lasted twenty minutes; the temperature arose to 104.6 and the respirations to 30. The patient looked anxious, but did not complain of pain. Physical examination revealed nothing important. In four hours the temperature dropped to 99, the pulse to 106, and the respirations to 20. The possibility of a small pulmonary embolus was thought of as the cause of the disturbance. The remainder of the convalescence was uneventful. The mother went home in three weeks and a half, and was discharged well with her baby. Vaginal examination six weeks after delivery showed an involutioned uterus which was normal in size, position and mobility; the os of the cervix was closed, and the vaults failed to disclose anything unusual.

SUMMARY.

1. A study of the literature indicates that acute puerperal inversion occurs about once in 100,000 deliveries.
2. The chief etiological factors are: Improper use of the Credé method of expressing the

placenta, pulling on the cord, uterine atony, manual extraction of the placenta a paralyzed cervix, intra-abdominal pressure from sneezing or coughing, tumors situated at the fundus and fundal implantation of the placenta. There is a difference of opinion as to their relative importance.

3. The methods of inversion are fundal, lateral and cervical, but the occurrence of spontaneous cases emphasizes the importance of the cervical route as a result of paralysis of the cervix.

4. Prophylaxis should be carried out by personal management of the third stage of labor by the obstetrician, and the early use of ice, ergot and pituitrin, with less manipulation of the uterus after the delivery of the placenta.

5. In reducing the inversion by taxis, care must be taken to avoid rupture. Other operative procedures are indicated where this fails.

6. If shock and hemorrhage are very severe, these should be treated in preparation for subsequent reduction.

7. The average mortality is about 45 per cent.

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BASTEDO'S SYMPTOM IN APPENDICITIS.

JERLOV, E. (*Acta Chirurg. Scandinavica*, Vol. LIV, fasc. ii). Bastedo's Symptom consists of a sensation of pain in the region of the appendix when the colon, previously emptied, is inflated. Jerlov has refined the technic by attaching a manometer to the rectal tube, and by attaching a distensible bulb which prevents the escape of gas around the tube. Air is introduced into the bowel until pain is felt in the region of the appendix, or until the pressure equals 120 mm. mercury.

Ulcerative colitis, typhoid fever and dysentery are contraindications to the use of this test. Jerlov employed it on 100 cases with no injurious results. He emphasizes the fact that it should be employed with great caution. The results in his 100 cases follow:

1. Chronic catarrhal appendicitis—24 cases: 13 positive, 11 negative. Bastedo positive (average) at 50 mm. Hg.
2. Chronic appendicitis with acute catarrhal exacerbation—19 cases: 17 positive, 2 negative. Bastedo positive (average) at 32 mm. Hg.
3. Ulcerative or gangrenous appendicitis—14 cases: 13 positive, 1 negative. Bastedo positive at 31 mm. Hg.
4. Appendicitis with peritonitis—3 cases: 3 positive. Bastedo positive at 33 mm. Hg.

In 38 other cases with various intra-abdominal pathology, including four cases from which the appendix had been removed, Bastedo's sign was negative.

Jerlov believes that the sign is positive when the wall of the appendix is indurated, even if the induration is not inflammatory. (A carcinoma of the appendix gave a positive test.) If the appendix is bound down by adhesions, however, it will not respond to the test. [G. G. S.]

SO-CALLED ABACTERIAL RENAL PYURIA.

SÖDERLUND, G. (*Acta Chirurgica Scandinavica*, Vol. LIV, fasc. ii). The writer reviews the literature on the subject of abacterial renal pyuria, and quotes at some length from the work of Runebergs. The latter had collected 56 cases exhibiting this condition; of these, 18 were cases of renal tuberculosis. Of the remaining 31, Runebergs had done nephrectomy in 10. Eight of these ten showed congenital abnormalities; three showed a follicular pyelitis; in five the ureter was thickened and adherent. Microscopically these cases showed pyelonephritis, and in some sections micrococci were found. Söderlund reports three cases of abacterial renal pyuria, all in otherwise healthy men. In all, the condition was bilateral. The symptoms were of gradual onset and consisted of frequency of urination, strangury and terminal hematuria.

The urine was turbid. Cystoscopy showed edema and redness of the bladder wall, with considerable fibrinous exudate. Ureteral specimens were turbid; the sediments showed pus and a large amount of fibrin. No bacteria could be found in stained spec-

mens or by culture. Repeated search showed no tubercle bacilli.

In Case 1, Söderlund removed one kidney. It showed slight chronic interstitial nephritis, scattered glomerulitis, follicular pyelitis and a thickened pelvis and much thickened ureter. It was not specific. After the nephrectomy in Case 1, and after several years in Cases 2 and 3, the condition cleared up completely. This fact, the writer believes, ruled out tuberculosis. He is convinced that there was no gonococcus infection.

He believes there are two types of abacterial renal pyuria, the one due to a micrococcus which is not discovered in the urine; the other, perhaps, due to the elimination through the kidney of some toxin.

[G. G. S.]

CARCINOMA OF THE PROSTATE.

BARRINGER, B. S. (*Surgery, Gynecology and Obstetrics*, February, 1922) treats this condition largely from the point of view of radium. He analyzes about one hundred forty-five cases. He states in conclusion that in but two per cent. of cases carcinoma of the prostate seen at the Memorial Hospital was the disease apparently confined to the prostate alone; that routine prostatic examination of all patients beyond the age of fifty, irrespective of symptoms, is the only rational method whereby we can make diagnosis of prostatic carcinoma early in the disease; that the results of radium treatment of carcinoma of the prostate are superior to operative removal both in causing regression of the disease and in coping with urinary retention.

[E. H. R.]

HISTOLOGY AND MORTALITY IN CASES OF TUMOR OF THE BLADDER.

SCHOLL, ALBERT J. (*Surgery, Gynecology and Obstetrics*, February, 1922) writes as follows:

In 168 epithelial tumors of the bladder removed at operation were three benign papillomata. The three patients are alive on an average of five years after operation. In these one hundred and sixty-eight cases were seventy-one malignant papillomata and ninety-four solid carcinomata. Twenty-six (36.6 per cent.) of patients in the first group have been dead on an average of eleven months after operation, in contrast to sixty-seven (71.2 per cent.) of the latter group who died on an average of seven and one-half months after operation. Forty-five (43.4 per cent.) of the patients with malignant papillomata are alive on an average of three years and three months since their operation, in contrast to twenty-seven (28.8 per cent.) of the patients with solid carcinoma who are alive on an average of two years and three months. Forty-one and nine-tenths per cent. of all patients operated on for malignant papilloma have lived more than three years after operation, only 10.6 per cent. of patients with solid carcinoma have lived more than three years after operation. The incidence of recurrence following operation on patients for solid carcinoma is much greater than that for malignant papilloma. In a solid tumor the local extension is generally more advanced; the removal requires a more extensive operation and the immediate mortality is greater.

Squamous-cell carcinomata of the bladder are extremely malignant and rapidly fatal; five of six patients with tumors of this type died after a very short period of symptoms.

HISTOLOGY AND MORTALITY IN CASES OF TUMOR OF THE BLADDER.

Adenocarcinomata are about as severely malignant as papillomata. Of five patients, one died two years

after operation, one had a recurrence in two years, three are well, two, six months and one, two years after operation.

Simple angiomata of the bladder may grow so large as to cause obstruction. In three cases, one child of seven died of hemorrhage from a tumor growing from the bladder to the rectum; a man aged seventy-six years was first seen in an inoperable condition; and a girl aged nineteen years had an extremely large tumor in the dome of the bladder. This was removed, and five years later the patient was perfectly well.

Myomata of the bladder often grow very large. There was one patient in the series with myoma. Eight years after the removal of a large tumor the patient was alive and well.

Generally myxomata occur in young persons. Two infants in the series had myxomata; both died shortly after operation.

Sarcoma is probably the rarest and most malignant of vesical tumors. It occurs in middle-aged persons, metastasizes extensively, and has a tendency to recur rapidly. The one sarcoma in the series was seen at an inoperable stage.

[E. H. R.]

SYNOVIAL MEMBRANE TUMORS OF JOINTS.

HARTMAN, FRANK W. (*Surgery, Gynecology and Obstetrics*, February, 1922) writes a very interesting article on this little-discussed subject. His article is illustrated with microscopic sections and case histories. He does not go into the literature on the subject, nor does he classify the various lesions. The question arising in face of knee-joint tumors is that of saving the limb and the function of the joint. It has been found that tumors of low-grade malignancy can often be entirely removed without recurrence and a functioning joint secured. These cases, however, are comparatively few, and most of them require resection of the joint.

[E. H. R.]

SACRAL ANAESTHESIA IN UROLOGY.

SCHOLL, ALBERT J., JR. (*The Journal of Urology*, August, 1921). An anaesthesia that will not appreciably increase the work of the kidneys, such as sacral anaesthesia, is a desirable asset. In the urological examination of any large group of cases there is a certain percentage requiring a complete anaesthesia of bladder and urethra. Spinal anaesthesia, while it affords excellent relaxation, induces too extensive anaesthesia for minor operations. It inevitably keeps the patient in bed for a certain time, and carries with it a definite element of danger if not handled by an operator skilled in its use. Etherization must be very deep before relaxation of the bladder is obtained, and like spinal, it necessitates hospitalization for the patient. The restlessness and movements of the patient under a general anaesthetic greatly interfere with the accuracy and expediency of the examination. Sacral anaesthesia has been found valuable in the examination of contracted, irritable bladders, particularly those of tuberculous origin. The insertion of radium needles into malignant prostates, fulguration of tumors of the bladder, urethral and ureteral dilatation, litholapaxy and other operations have been readily carried out under this anaesthetic. The injection is made by passing a thin, spinal puncture needle through the sacral hiatus; then 30 cc. of specially prepared solution of a mixture of novocain, sodium chloride, and sodium bicarbonate is injected. Care is necessary that this be entirely an extradural injection.

[B. D. W.]

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THE PRESENT STATUS OF PATHOLOGY.

MEN of the best type are no longer being attracted into pathology as a life work, but only as a stepping-stone to some other branch of medicine, such as surgery. There are at least two reasons which may be assigned for this state of affairs. One is that the salaries paid to teachers of pathology are not adequate as compared with those received by clinicians, even by those engaged on the full-time basis. The other is that the rewards of research in pathology do not seem so many and so promising as in other, newer lines of investigation.

The young medical man, after years spent in acquiring his education, needs and wants money and, if he is scientifically inclined, a fruitful field for investigation. If he is to succeed, he must advertise himself, and the publication of research work is the one way in which, at the present time, he can most successfully do so. When a man is discussed for a position in a medical school, almost the only question asked is, "What has he published?" The longer the list of his published papers is, the better are his chances of obtaining the position. Nothing else counts for very much, least of all, teaching ability.

Pathology seems to be regarded by many as a finished, dead subject, like anatomy, with little or nothing left to discover. For the past generation or more, an offshoot of it, bacteri-

ology, has held the floor. More recently, serology came to the front. At the present moment, chemistry is being actively exploited as the one field of investigation which is going to clear up all that is medically unknown.

Each line of work is, in turn, drained of its easy, obvious possibilities as the nuggets of gold were picked up by the early prospectors. Pathology has now reached the stage of hydraulic mining. The problems remaining to be solved require a high degree of ability and training, in addition to time and patience.

There are three more or less interrelated problems connected with the present status of pathology that deserve brief consideration, namely, teaching, hospital laboratories and research.

It goes without saying that all men who teach pathology should first have at least two years of thorough training under competent supervision, in the pathological laboratory of a hospital in order that they may see and study a large amount of pathological material derived from post-mortem examinations and surgical operations. They require special drill and experience in their own line of work, just as much as the men who become internes in medicine, surgery and the specialties, before they are qualified to give instruction to others.

Most men do not care for teaching. It is an art by itself with which but few are gifted, but a certain degree of success in the art may be attained by most men with proper coaching and training. To teach well is a very useful and needful accomplishment for medical instructors, because the students pay to be taught what is known about the various subjects studied and how best to make use of the knowledge acquired. Hence knowledge of his subject and ability to teach are probably the most important requirements of a professor in a medical school. Research ability has its use there, but plays a minor part.

To obtain well-trained men with teaching ability costs money, and medical schools are not inclined to pay the price. They usually will put in a good head of a department at a fair salary, but limit his budget and force him to obtain almost anyone available to fill each instructorship. This is not the best way to build up a strong department which should be constantly developing the teachers of the future.

There has arisen, within the last few years, but especially since the war, a great demand for pathologists for hospitals, partly owing, it is to be hoped, to a better appreciation of their usefulness to the clinician, but partly on account of the desire of the hospitals to be ranked in Class A. As a result, almost anyone, at the present time, who will call himself a pathologist, can obtain a position.

The demand far exceeds the supply. The salaries paid are out of all proportion to the actual pathological training and knowledge which many of the men have acquired; for example, from personal observation, \$2000 and maintenance, \$4000 and \$5000 a year for recent graduates with only one year's training in a pathological laboratory. With such opportunities before them, few men will accept teaching positions in a school at one to two thousand dollars a year, or less.

There are, however, certain disadvantages connected with these newly created positions for pathologists. The incumbents are expected to know and to be able to do everything in pathology, bacteriology, serology, and clinical pathology, including blood chemistry. It is as though a man, after one year's surgical internship, were compelled to do with equal authority and facility, surgery, gynecology, eye, ear, and the other surgical specialties. Naturally, it can't be done except in a very superficial way that often may have dangerous results.

These new openings in pathology, however, are going to force the medical schools to pay better salaries to their instructors of this subject or get along with very inferior men, except in so far as they obtain the occasional young man who looks ahead and plans for the future. As an independent pathologist working without supervision, he will not get far. His reward will be a large salary while young, with little prospect of much advancement or improvement in the future and small opportunity for investigation. If he really wishes to arrive somewhere near the top in his chosen field, he must work for years under good men, in hospital laboratories and in schools, teaching and investigating, otherwise he will not develop and broaden out.

In the larger hospitals, where a staff of assistants is available and the different lines of work are under the charge of separate men, the position of pathologist becomes most desirable. He is in the ideal position, at the fountain head of pathological problems which stimulate him to investigation. His energies are not exhausted by executive work and the teaching of undergraduates. He has all he wants in that line in training his assistants and such graduate students as he may admit to the laboratory. The salaries paid to well-trained men in these positions run as high as \$8000, with a yearly budget of \$45,000. This is the latest authoritative quotation, but larger amounts have been demanded.

Nearly thirty years ago a young medical graduate, now a professor in one of our best medical schools, formulated the following as the way to write a medical paper: three weeks in the laboratory, three months in the library, one hundred and twenty to one hundred and fifty abstracts from the literature. Living up

to that principle made him and has paid him, but his contributions to medical science have not been noted for originality.

Since then, investigation—research work—has become the greatest fad of the medical schools. It counts above everything else. Unquestionably it has its uses,—to advance knowledge, to test out the teachings of the past, to correct mistakes. Unfortunately it has grown to be a great advertising scheme. Almost everything else is sacrificed to it. The ideal seems to be a line of research where every experiment performed can be rushed into print. Few men are content to work and wait until they can publish digested results. Investigations, of which all that is new could easily be presented in twenty to thirty pages, have been expanded to hundreds. The limit has already been reached, it is to be hoped, in luxurious monographs with wide margins and single illustrations to the page.

Few men are born investigators: the manufactured kind is common enough; fewer still are original. Medical schools make little attempt to obtain, develop and aid in every way the true variety. Instead, they often seem to prefer to seek out and reward those possessing self-assurance, aggressiveness, and ability to advertise.

To sum up these criticisms, which apply to other departments as well as to that of pathology: there is a strong tendency to pay too much attention to research work, too little to training students and assistants in fundamentals, the most important work of a medical school. Instruction and training should come first; when they are thoroughly organized and in perfect running order, research work may be considered.

There is still opportunity for discoveries in the field of pathology. The bacteriology and pathology of most of the commoner infectious diseases have been pretty thoroughly worked out; the essentials are known. But there still remain plenty of problems for study, as, for example, the causes of various chronic toxic lesions, such as those occurring in the liver, kidneys, pancreas, and blood-vessels. Sampson, of Albany, has just shown in his brilliant work on "Ovarian Hematomas of Endometrial Type," what a born investigator, with both clinical and pathological training, can do in the field of special pathology. The recent work on rickets, by a group of men in different fields of medicine working together, illustrates the value of coöperation. There is too little of it in our medical schools. Indifference or jealousy is much more common. The tendency with holders of research funds is to hire young men who have had little or no special training in any line of work and set them to covering all sides of any subject under investigation, so that any results obtained will redound solely to the credit and glory of the department con-

cerned and of the man at the head of it. They would get farther and accomplish more if they worked in hearty coöperation with their expert colleagues.

A PHYSICIAN IN THE CABINET.

With the appointment by President Harding of Dr. Hubert Work of Pueblo, Colorado, as Postmaster-General, there is a physician in the Cabinet for the first time since Dr. James McHenry served as Secretary of War in the Cabinets of Washington and Adams. So long ago as 1892, Dr. H. O. Marcy, now of Cambridge, suggested to the Council of the Massachusetts Medical Society that it would be for the advantage of the medical profession to create the position of cabinet officer of public health. The Council decided that a position in the Cabinet would not increase the efficiency of a public health officer and shortly the agitation was dropped.

Dr. Work's appointment indicates that a physician may develop executive ability, although the practice of medicine *per se* does not conduce to such attributes of character. Dr. Work, after practising medicine in Colorado, managing a sanatorium in Pueblo, made himself useful to the National Republican Committee, showing there that he was an executive of a high order of merit. He presided over the meetings of the House of Delegates, the governing body of the American Medical Association, showing that he possessed the ability of a presiding officer, a rare quality in medical men; now he is president of that organization, and therefore is in touch with the larger policies of medicine as they apply to the public. He has had a year's experience as Assistant Postmaster-General under Will H. Hays, whose resignation went into effect March 4. It is to be hoped that he may improve the quality of the postal service, which has been poor since the war. Being in the President's official family, he will be able to join with Brigadier-General Sawyer, the Executive's personal physician, in giving advice on legislation touching the interests of the medical profession. We welcome the entrance of a physician to the official family of the President, and wish him all success.

MID-WINTER CLINICS OF THE MAINE PUBLIC HEALTH ASSOCIATION AND THE MAINE MEDICAL ASSOCIATION.

THESE exercises were held at the Eastern Maine General Hospital and the Chamber of Commerce, Bangor, Maine, on February 20 and 21, 1922. There were medical, surgical, venereal, x-ray, and orthopedic clinics, and a comprehensive program, including exhibits and scientific papers.

Massachusetts was well represented by Dr. A. K. Stone, who spoke on The Influence of Organization in Reducing Death Rate. Dr. Eugene R. Kelley discussed the Future Relationship of the Nursing and Medical Professions and Child Welfare Work as a Preventive Health Measure. Dr. Channing Frothingham gave the results of his study on The Relation of the Cults to General Medicine, and Dr. F. B. Lund presented the subject of An Ancient Conflict between Poetry and Anatomy.

Maine physicians also took prominent part in the presentation of papers and in discussions.

NEWS ITEMS.

WORCESTER STATE HOSPITAL.—Dr. Oliver H. Stansfield was the speaker at the staff luncheon at this hospital, February 17. His subject was the "Diagnosis and Treatment of Heart Disease." On the second of March, Dr. Philip Cook spoke on the subject of X-ray Interpretation.

THE regular meeting of the Worcester District Medical Society was held on Wednesday, March 8th, in the University Club rooms, 377 Main Street. Program: "Epidermophytosis," Dr. Charles J. White, Boston; "The Laboratory Investigation of Epidermophytosis," Dr. Arthur W. Greenwood, Boston; "The Late Syphilitic and Therapeutic Problem," Dr. George A. Dix, Worcester. The discussion was opened by Dr. Clara P. Fitzgerald, Worcester.

THE monthly meeting of the Lawrence Medical Club was held February 27, with Dr. Leith, at the Y. M. C. A. rooms. The chairman for the evening was Dr. Look. Subject: "Pneumonia," by Dr. Edward Libby, Boston.

MASSACHUSETTS GENERAL HOSPITAL.—A Staff clinical meeting was held Monday, March 13, 1922. Program: "Points Concerning Bile Pigment Metabolism," Dr. Chester M. Jones; "Studies of the Causes of Death in Early Infancy," Dr. Eli C. Romberg; "Results from Quinidin Therapy," Dr. Louis E. Viko; "Metabolism in a Case of Acute Myelogenous Leukemia," Dr. William G. Lennox.

GIFT TO THE MEDICAL SCHOOL OF WESTERN RESERVE UNIVERSITY.—Samuel Mather has given \$2,500,000 to this institution. This sum is in addition to previous gifts totaling \$800,000.

UNIVERSITY OF CINCINNATI COLLEGE OF MEDICINE.—A campaign is under way to secure an endowment fund of \$216,000 for this college, which will make a total of \$2,000,000 for

1920-1921. When this is secured, the Rockefeller Foundation will add \$700,000, and the Carnegie Foundation \$200,000. Ohio has ambitions for the creation of medical schools which will gain recognition throughout the world.

THE NEW FIELD SECRETARY OF THE NATIONAL COMMITTEE FOR THE PREVENTION OF BLINDNESS.—Mr. Lewis H. Carris, of Washington, D.C., has accepted the invitation of the National Committee for the Prevention of Blindness to become its Field Secretary, and has already entered upon his work. Mr. Carris was, until January 15th, Administrative Head for the Federal Board for Vocational Education, in charge of the administration of the Federal Vocational Educational Act and the Industrial (civilian) Rehabilitation Act.

As Field Secretary, Mr. Carris will assist local and state organizations interested in the campaign for the prevention of blindness and the conservation of vision. He will also assist school authorities in the organization of special classes for school children of such limited vision that they cannot profitably use the books and other educational equipment for normally sighted children.

DURING the week ending March 4, 1922, the number of deaths reported was 322 against 217 last year, with a rate of 21.98. There were 51 deaths under one year of age against 30 last year.

The number of cases of principal reportable diseases were: Diphtheria, 76; scarlet fever, 40; measles, 154; whooping-cough, 9; typhoid fever, 5; tuberculosis, 56.

Included in the above were the following cases of non-residents: Diphtheria, 12; scarlet fever, 6; measles, 1; tuberculosis, 6.

Total deaths from these diseases were: Diphtheria, 4; scarlet fever, 1; tuberculosis, 22.

Included in the above were the following cases of non-residents: Diphtheria, 2; tuberculosis, 2.

Influenza cases, 207; deaths, 9.

Lobar pneumonia cases, 93; deaths, 41.

HARVARD MEDICAL ALUMNI ASSOCIATION.—The Harvard Medical Alumni Association is planning to hold its annual meeting on Thursday, May 18th, 1922. Owing to the disarrangements during and after the late war, the affairs of the Association have been considerably in abeyance. This organization is now planning to resume activities. A very attractive program is being prepared for this coming annual meeting, and a copy of this in full detail will be mailed later. The meeting will begin in the morning, and there will be clinics at the Massachusetts General Hospital, Peter Bent

Brigham Hospital, and Boston City Hospital. Following lunch and business meeting, a visit to the Harvard Medical School will be made, where the Society will be entertained by various heads of departments. There will be a dinner at the Harvard Club after this, and accounts given of the present activities of the Medical School, and its hopes for the future.

STATE HOSPITALS FOR CARE OF SICK AND FEEBLE-MINDED CHILDREN.—Under the Department of Public Welfare, the hospital for the care of sick children of normal mind will be completed early this year, relieving the State Infirmary at Tewksbury of about 100 children. Also, under the large building program at Belchertown, about 200 feeble-minded children will be transferred from Tewksbury, and with the six new units added to the present hospital accommodations at Tewksbury, the State Infirmary will have much-needed relief.

The Massachusetts Medical Society.

MEMBERSHIP CHANGES FROM JANUARY 1, 1922, TO MARCH 1, 1922.

INCLUDING deaths, action by the Council, namely, retirements, resignations, deprivations for non-payment of dues, transfers from one district to another without a change of legal residence; also changes of residence and address and errors in the Directory of January 1, 1922, as reported previous to March 1.

Compiled by the Secretary of the Society.

ALPHABETICAL LIST.

Adamian, Hovsep Garo, from Lawrence to Fresno, California, 2424 Ventura Ave.
 Adams, William Carlton, East Taunton, now 375 Middleboro Avenue.
 Allen, Gardner Weld, Boston, retired by Council, Feb. 1, 1922, 374 Commonwealth Ave. Mark name with dagger.
 Ash, Richard Maurice, Quincy, now 2 Abbey Road.
 Balcom, Kenneth Ira, Worcester, now 134 Lincoln St.
 Barach, Alvan Leroy, from Boston to New York City, 33 East 68th St.
 Barney, James Dellinger, Boston, now 87 Marlborough St.
 Bartley, John Joseph, Lawrence, now 334 Haverhill St.
 Battershall, Joseph Ward, died at Attleborough, February 23, 1922, aged 79.
 Berry, William Christopher, died at Roxbury, February 8, 1922, aged 62.
 Blake, Gerald, Boston, now 311 Beacon St.
 Blake, Harrison Gray, died at Woburn, January 26, 1922, aged 58.
 Boivin, Omer Emède, Fall River, 187 No. Main St.
 Bowen, James Francis, St. Louis, Mo., U.S.P.H.S. Dispensary.
 Briggs, Maurice Taggart, Delete second "v" from Drive.
 Brindisi, Rocco, Boston, 147 Richmond St.
 Brownrigg, Albert Edward, Nashua, N. H., Highland Spring Sanatorium.

- Bullard, Carleton Wheeler, Newburyport, now 194 High St.
- Bunker, Henry Alden, Jr., from Medfield to Brookline; office, Boston, 240 Newbury St.
- Burt, Clarence Edward. Delete "Westport, Office."
- Butler, Patrick Francis, Boston, now 35 Bay State Road.
- Butterfield, George Kittredge, from Hathorne to Providence, R. I., 305 Blackstone Boulevard.
- Callahan, Henry Alphonsus, from Jamaica Plain to Medical Corps, U. S. Army.
- Capeles, Thomas Francis, Haverhill, now 191 Merrimack St.
- Carey, Bernard William, from Fitchburg to Winthrop; office, Boston, State House, Room 546.
- Carroll, Henry Gerald, from Peabody to Salem, 309 Essex St.
- Cary, Foster Harrington, Denver, Colo., now 266 Metropolitan Building.
- Chapman, William Harden, Hingham, now Summit St.
- Cheever, Austin Walter, Boston, now 21 Bay State Road.
- Conner, Homer Leigh, from Haverhill to Medical Corps, U. S. Army.
- Corcoran, George Bartlett, West Springfield, now 84 Park St.
- Côté, Corinne Rhea, from Worcester to Boston, 483 Beacon St.
- Coues, William Pearce, from Norfolk to Suffolk (Council), Boston, 31 Massachusetts Ave.
- Councilman, William Thomas, retired by Council Feb. 1, 1922, 78 Bay State Road, Boston.
- Crandall, Walter Midkiff, Medical Corps, U. S. Army.
- Cruikshank from Cruikshank, Frank Sheppard, from Dorchester to West Roxbury, 53 Willow St.
- Cummings, John Joseph. Delete dagger—he is not retired.
- Curtis, Francis George, Chestnut Hill, Newton; office, West Newton, City Hall, Health Dept.
- Curtis, Robert Dudley, from Boston to Newton Center; office, Boston, 355 Marlborough St.
- Cushman, Howard Lewis, Methuen; office, Lawrence, 457 Essex St.
- Daly, Jeremiah James, Andover; office, No. Andover, 26 Second St.
- Derby, Joseph Patrick, Springfield, 525 Main St.
- Devere, Fred Hewitt, Auburn, R. I., 667 Park Ave.
- Dewis, John William, Brookline; office, Boston, 270 Commonwealth Ave.
- Durrie, Anna Belle, resignation accepted by Council, Feb. 1, 1922. Cross off name.
- Elkind, Henry Byron, Worcester, now 28 Pleasant St.
- Enebuske, Claes Julius, from East Boston to Boston, 365 Massachusetts Ave.
- Farrar, Lonnie Oliver, from State Farm to State Colony, East Gardner.
- Finnegan, Philip Joseph, Salem, now 82 Washington Sq.
- Fitts, Henry Bird, resignation accepted by Council Feb. 1, 1922.
- Fitz, Reginald, from Roxbury to Rochester, Minn., Mayo Clinic.
- Flagg, Elisha, Boston, from 92 to 192 Marlborough St.
- Flood, Everett, retired, from Palmer to Mt. Dora, Florida.
- 1905 } Flynn, Henry Lawrence, Jamaica Plain (Boston), 204 South St. Restored by Council Feb. 1, 1922.
- Forster, Robert William, died at Lawrence, Feb. 7, 1922, aged 46.
- Fremont-Smith, Frank, resignation accepted by Council, Feb. 1, 1922.
- French, Charles Ephraim, Lowell, now 9 Central St.
- Friedman, Harry Falk, from Boston to Allston; office, Boston, 270 Commonwealth Ave.
- Frost, Harold Maurice, from Norfolk to Suffolk (Council), Boston, 374 Marlborough St.
- Gaffney, Mary Evangeline, from Greenwood Mountain, Me., to Wallum Lake, R. I.
- Gannett, William Whitworth, joined the Society in 1877, not 1887. Change date.
- Garbelnick, David Abraham, from Bradford to Haverhill, 25 Lawrence St.
- Généreux, Edmond Alfred, from Webster to Millville.
- Gillon, Charles Joseph Carroll. "Carroll" omitted in Directory of Jan. 1, 1922.
- Golden, Lazarus, from Norfolk to Suffolk (Council), Boston, 99 Green St.
- Goodwin, Harold Merle, resignation accepted by Council, Feb. 1, 1922.
- Gookin, Edward Richard, from Dorchester to Medical Corps, U. S. Army.
- Graham, Douglas, retired by action of Council, Feb. 1, 1922. Mark name with dagger.
- Green, John Orne, retired; died at Boston, Jan. 5, 1922, aged 80.
- Greenwood, Sewall Elliot, Templeton, retired; died at Templeton, Feb. 5, 1922, aged 68.
- Haley, William Thomas, from Salem to Boston, 531 Beacon St.
- Hamblet, Mary Lucia, Wallum Lake, R. I. "Lake" omitted in Directory of Jan. 1, 1922.
- Hamilton, Albert John Adams, now 270 Commonwealth Ave., Boston.
- Hamilton, Robert DeLancey, Newburyport, now 220 High St.
- Hamilton, William John, from Newton Center to Westwood, Westwood Lodge.
- Hartnett, Edward Henry Lewis. Delete first "t." His name is Harnett.
- Healy, William, West Natick. Delete "P. O. Box 223."
- Hoberman, Samuel, Malden, now 115 Salem St.
- Hussey, Earle Edward, from Newport, R. I., to Fall River, 422 No. Main St.
- Jackson, Roy Chase, from Worcester to Middletown, Conn., Connecticut State Hospital.
- Janjigian, Robert Rupen, from Bangor, Me., to Wilkes-Barre, Pa., Wilkes-Barre City Hospital.
- Jewett, Everett Porter, from West Springfield to Three Rivers (Palmer), 100 Maple St.
- Kassels. Change to Kassees.
- Kelleher, Jeremiah Edward, Haverhill, now 120 Emerson St.
- Kernison, Frederick Marshman, from Newton, N. H., to Boston, 654 Tremont St.
- Khoury, Kamel, resignation accepted by Council, Feb. 1, 1922.
- King, Nicholas James, Roslindale, now 63 Ashland St.
- Lacey, Walter Hamer, Keene, N. H., now 85 Washington St.
- La Liberté, Elie Joseph, Fall River, now 131 So. Main St.
- Lavelle, Gertrude Helen, from Worcester to Natick, 1 Lincoln St.
- Leith, Richard Bliss, Lawrence, now 575 A Essex St.
- Limauro, Louis Herbert, Lynn, now 158 So. Common St.
- Litchfield, William Harvey, from Brookline to Marblehead, 73 Front St.
- Long, Rufus Wilfred, from Manchester, N. H., to Lowell, 226 Merrimac St.
- Marley, Walter John, Minneapolis, Minn., now 5110 Wentworth Ave.
- Marvin, Harold Myers, resignation accepted by Council, Feb. 1, 1922.
- McAllister, Frederick Danforth, Methuen; office, Lawrence, 301 Essex St.
- McCarty, James Joseph, retired (Council), from Lowell to Minneapolis, Minn.
- McDermott, Joseph Edward, from Boston to Charlestown, 296 Bunker Hill St.

- McLaughlin, Arthur Otis, Haverhill, now 100 Emerson St.
- Meredith, Florence Lyndon, from Watertown to Philadelphia, Pa., 1530 Spruce St.
- Merrill, Everett Albert, resignation accepted by Council, Feb. 1, 1922.
- Merritt, Robert Elmer, resignation accepted by Council, Feb. 1, 1922.
- Mikolaitis, Casimir John, Lawrence, now 90 A Lawrence St.
- Morse, Frank Leander, resignation accepted by Council, Feb. 1, 1922.
- Mudge, Otis Pope, Amesbury, now 152 Main St.
- Munro, Walter Lee, Providence, R. I., now 62 No. Main St.
- Myers, Edmund, Boston, now 661 Tremont St.
- Nye, Robert Nason, from Boston to Forest Hills (Boston), State Antitoxin and Vaccine Laboratory.
- Ober, Frank Roberts, Change year of entrance to Society from 1901 to 1914.
- Oberg, Frank Thorwald, resignation accepted by Council, Feb. 1, 1922.
- O'Connell, Andrew Edward, Worcester, now 6 High St.
- O'Connor, Joseph William, Worcester, now 208 Highland St.
- Oviatt, George Alexander, of South Sudbury, died at Waltham, Feb. 26, 1922, aged 72.
- Parris, Roland Oliver, from Brookline to Waban (Newton); office, Boston, 636 Beacon St.
- Pattrell, Arthur Ellis, was transferred from Worcester to Suffolk by Council, Feb. 1, 1922. No change of address.
- Parsons, Azariah Worthington, Mexico City, now Ave. Madero, 10.
- Pearl, Samuel Maurice, from Norfolk to Suffolk (Council), Boston, 37 Chambers St.
- Penhallow, Dunlap Pearce, Medical Corps, U. S. Army.
- Phillips, Karl Tristram, resignation accepted by Council, Feb. 1, 1922.
- Pigeon, James Cogswell Du Maresque, retired by Council, Feb. 1, 1922. Mark name with dagger.
- Piper, Frank, from Boston to Cambridge; office, Boston, 53 Mt. Vernon St.
- Ratté, Arthur Andrew. Delete accent over "e."
- Reid, William Duncan, Boston, now 21 Bay State Road.
- Robinson, William Perry, change from Haverhill to Ayers Village (Haverhill)
- Rockwell, Llewellyn Harrison, Boston, now 479 Beacon St.
- Round, Arthur Morey, retired by Council, May 31, 1921. Mark with dagger.
- Rowley, William, died at Lanesville, Jan. 29, 1922, aged 57.
- Saunders, Sallie Harding, from East Boston to Arlington, Office, East Boston, 103 Cottage St.
- Shaw, John William, Newburyport, now 7 Orange St.
- Sheehan, Edward Bernard, from Brookline to Boston, 520 Beacon St. (Council).
- Sherburne, Andrew Edward, from Dorchester to Portsmouth, N. H., Islington Rd.
- Smith, Lawrence Weld, Brookline; office, Roxbury, 40 Wigglesworth St.
- Smith, Richard Hixley, Boston, Boston City Hospital.
- Smith, Walter Anson, retired by Council, Feb. 1, 1922. Mark with dagger.
- Stack, John Joseph, deprived of the privileges of fellowship by Council, Feb. 1, 1922.
- Stone, Ralph Edgerton, Beverly, now 221 Cabot St.
- Street, Lionel Alexander Burnet, resignation accepted by Council, Feb. 1, 1922.
- Sullivan, William Joseph, Lawrence, 273 Haverhill St. Delete "N" from before Haverhill.
- Supple, William Raymond, Cambridge; office, Boston, 362 Commonwealth Ave.
- Titus, Raymond Stanton, from Boston to Jamaica Plain; office, Boston, 65 Bay State Road.
- Tolman, Henry. Delete "Jr." from his name.
- Tuttle, George Thomas, Milton, 110 Highland St., not Ave.
- Vaughan, Jonas Hobart, resignation accepted by Council, Feb. 1, 1922.
- Vivian, William James, from Worcester to Jamaica Plain (Boston), 220 South St.
- Vose, Robert Henry, from Norfolk to Suffolk (Council), Boston, 443 Beacon St.
- 1910 } Wallace, Harold Lowe, Allston (Boston), 56
1922 } Park Vale Ave., restored by Council, Feb. 1, 1922.
- Weissman, Ruth, from Long Island to Roxbury, 45 Townsend St.
- Welles, Edward Sawtelle, resignation accepted by the Council, Feb. 1, 1922.
- Wheeler, Charles Douglas, Worcester, now 340 Main St.
- Wheeler, Lucia Anna, from Waterville, Me., to Wernersville, Pa., State Asylum.
- Whelan, Charles, Hingham; office, Boston, now 375 Commonwealth Ave.
- Williams, Carl Alonzo, Worcester, now 3 Irving St.
- Winestine, Frederica, resignation accepted by Council, Feb. 1, 1922.
- Winsor, Allen Pellington, Brookline; office, Boston, 402 Marlborough St.
- Wood, Leonard, from U. S. Army to Manila, Philippine Islands.
- Wood, William Franklin, from Brighton to Palmer, Monson State Hospital.

LOCAL LIST.

- ALLSTON. Add to list the names of Friedman, H. F., and Wallace, H. L.
- ANDOVER. Mark name of Fuller, J. R., with dagger.
- ARLINGTON. Add name of Saunders, Sallie H.
- ATTLEBOROUGH. Delete name of Battershall, Joseph W.
- BOSTON. Mark Allen, G. W., with a dagger; also Councilman, W. T. (Council). Delete the following names: Barach, A. L.; Fremont-Smith, Frank; Green, J. O.; Haggert, G. E.; Irving, F. C.; Nye, R. M.; Piper, Frank; Stack, J. J.; Weissman, Ruth; Welles, E. S.; Winsor, A. P. Add the following names: Coues, W. P.; Enebuske, C. J.; Frost, H. M.; Golden, Lazarus; Haley, W. T.; Kassees instead of Kassels; McPherson, G. E.; Pearl, S. M.; Sheehan, E. B.; Smith, R. I.; Vose, R. H.
- BRADFORD. Delete Garbelnick, D. A.
- BROOKLINE. Delete these names: Chase, H. L.; Coues, W. P.; Frost, H. M.; Litchfield, W. H.; Sheehan, E. B. Add these names: Bunker, H. A., Jr.; Irving, F. C.; Winsor, A. P. Mark name of Douglas Graham with a dagger. (Council, Feb. 1, 1922.)
- CAMBRIDGE. Add name of Brides, A. E., and change first initial of Campbell, G. M., to C.
- CHARLEMONT. Add name of Parker, W. A.
- CHARLESTOWN. Add name of Hogan, D. J.
- DORCHESTER. Delete names of Cruikshank, F. S., and Pearl, S. M., also first letter "t" from Hartnett. Add name of Kandib, A. H.
- EAST BOSTON. Delete name of Enebuske, C. J.
- EAST GARDNER. Add this town heading and enter Farrar, L. O. (It has no Post Office.)
- FALL RIVER. Add name of Hussey, E. E.
- FITCHBURG. Delete name of Carey, B. W.
- FOREST HILLS. Add name of Nye, R. N.
- HANSON. Add heading (See South Hanson).
- HATHORNE. Add name of Chase, H. L.
- HAVERTHILL. Delete Conner, H. L., and accent over "e" in Ratté. Add name of Garbelnick, D. A.
- HOPEDALE. Delete Saunders, Sallie H.
- JAMAICA PLAIN. Delete Berry, W. C., and Callahan, H. A. Add Flynn, H. L.

LANCASTER. Add Bartol, E. F. W.
 LANESVILLE. Delete Rowley, William.
 LAWRENCE. Delete Adamian, H. G., and Forster, R. W.
 LOWELL. Delete McCarty, J. J. Add Long, R. W., and Markham, E. W.
 LYNN. Delete Merrill, E. A.
 MARBLEHEAD. Add Litchfield, W. H.
 MEDFIELD. Delete Bunker, H. A.; Kandib, A. H.; McPherson, G. E.
 MILLVILLE (*Worcester*). Add this heading and enter Gagnéux, E. A.
 MILTON. Delete Vose, R. H.
 NEW BEDFORD. Change initials of Burt from E. W. to C. E.
 NEWBURY (*Essex North*). Add this heading.
 NEWBURYPORT. Change initials of Morse, F. D., to F. O.
 NEWTON CENTER. Delete Hammond, W. J.
 PALMER. Delete Flood, Everett, and add Wood, W. F.
 PEABODY. Delete Carroll, H. G.
 ROXBURY. Put dagger before name of Pigeon, J. C. D. (Council). Delete Prens, Joseph. Add Weissman, Ruth.
 SALEM. Delete Haley, W. T. Add Carroll, H. G.
 SOMERVILLE. Delete Morse, F. L.
 SOUTHBRIDGE. Delete Fitts, H. B.
 SOUTH SUDBURY. Delete Oviatt, G. A.
 SPRINGFIELD. Delete Koplin, Harry.
 STATE FARM. Delete Farrar, L. O.
 TAUNTON. Delete Ripley, H. G.
 TEMPLETON. Delete Greenwood, S. E.
 THREE RIVERS. Add Jewett, E. P.
 WABAN (*Newton*). Add Parris, R. O.
 WATERTOWN. Delete Meredith, F. L.
 WEBSTER. Delete Gagnéux, E. A.
 WESTPORT. Change initials of Burt, from C. E. to E. W.
 WEST ROXBURY. Add Cruickshank, F. S.
 WEST SPRINGFIELD. Delete Jewett, E. P.
 WESTWOOD. Add Hammond, W. J.
 WHITMAN. Add Boch, Joseph.
 WINTHROP. Add Carey, B. W.
 WOBURN. Delete Blake, H. G.
 WORCESTER. Delete dagger from name of Cummings, J. J. Delete names of Jackson, R. C.; Phillips, K. T.; Winestine, Frederick. Add Prens, Joseph.

NON-RESIDENTS, BY STATES AND COUNTRIES

CALIFORNIA. DeLangle, C. P., now Yountville. Delete Street, L. A. B. Add Koplin, Harry, Los Angeles.
 CONNECTICUT. Add Jackson, Middletown.
 FLORIDA. Add Flood, Everett, retired, Mt. Dora. Delete Vaughan, Jonas.
 KANSAS. Delete Oberg, F. T.
 MAINE. Delete Gaffney, M. E.; Janjigian, R. R.; Wheeler, L. A.
 MARYLAND. Delete Simmons, R. H.
 MINNESOTA. Add McCarty, J. J., Minneapolis.
 NEW HAMPSHIRE. Add Sherburne, A. E., Portsmouth.
 NEW YORK. Add Barach, A. L., New York City; Haggart, G. E., New York City.
 PENNSYLVANIA. Add Janjigian, R. R., Wilkes-Barre; Meredith, F. L., Philadelphia; Wheeler, L. A., Wernersville.
 RHODE ISLAND. Delete Hussey, E. E. Add Butterfield, G. K., Providence; Gaffney, M. E., Wallum Lake. Add "Lake" to "Wallum," after Hamblet, M. L.
 MEDICAL CORPS, U. S. ARMY. Make title as shown. Delete Wood, Leonard. Add Callahan, H. A.; Conner, H. L.; Crandall, W. M.; Gookin, E. R.; Penhallow, D. P.; Simmons, R. H.

FOREIGN. Delete Boch, Joseph. Add Wood, Leonard, Manila, P. I.
 ADDRESS UNKNOWN. Delete Markham, E. W.; Merritt, R. E.; Parker, W. A.; Penhallow, D. P.
 WANTED—Addresses of Azadian, David George; Bardwell, Frederick Albert; Bolduc, Alfred George; Gwynne, Samuel Carlton; Lawlor, John Charles.

Changes of Address and Errors in the Directory
 Should be Sent to the Secretary, 42 Elliot
 Street, Jamaica Plain.

 Miscellany.

LEGISLATIVE MATTERS.

THE CONSTITUTIONALITY OF THE SHEPPARD-TOWNER ACT.

AN order has been introduced into the State Legislature by Eben S. Draper, calling for the opinion of the Attorney-General as follows:

Whereas, There is now pending in the General Court a bill, House, No. 181, being "An Act accepting the provisions of an act of Congress relative to the promotion of the welfare and hygiene of maternity and infancy, and providing for coöperation with the federal government"; and

Whereas, Doubt exists as to the constitutional right of the federal Congress to enact said federal act, being the Sheppard-Towner Act, so-called; therefore be it further

Ordered, That the Attorney-General is hereby requested to transmit to the General Court his opinion on the following questions:—

(1) Is the act of Congress, approved Nov. 23, 1921, entitled "An Act for the promotion of the welfare and hygiene of maternity and infancy, and for other purposes," within the constitutional powers of the federal government?

(2) Would the Commonwealth of Massachusetts, by the acceptance of said act, waive its rights as a sovereign State to contest the constitutionality of said act before the courts of the United States?

(3) If, in his opinion, said act is unconstitutional, what procedure should the Commonwealth now adopt to raise the question of constitutionality before the federal courts and to protest against the collection of money in this Commonwealth by federal taxation to provide funds for the operation of said act?

Speaking to this order, Henry L. Shattuck, in the course of his address, said:

"In the fiscal year ending June 30, 1916, Congress appropriated for the expenses of the Federal Government \$678,677,859. In the current fiscal year the appropriations total \$3,960,364,621, or over six times the appropriations of 1916. The internal revenue taxes alone collected by the Federal Government in

Massachusetts in 1921 amounted to \$259,865,213.85,—over a quarter of a billion dollars in one year, and a sum over six times larger than the total of \$39,736,266.33 appropriated in 1921 for running our entire State Government.

Formerly the main sources of Federal revenue were from the tariff and from liquor and tobacco. The burden of these taxes rested upon the several States substantially in proportion to population and consumption.

Today the main sources of Federal revenue are the individual and corporate income taxes and the inheritance tax. The burden of these rests with peculiar weight upon Massachusetts and the other highly developed industrial States, and it appears that much of the money collected by the Federal Government in Massachusetts is expended upon work in other States. This constitutes a great drain upon the resources of Massachusetts, and adds to the cost of living of all her inhabitants, whether they directly pay much or little in taxes.

Let me illustrate the statement that the burden of these taxes falls with special weight on Massachusetts. While, as I have said, Massachusetts turned over to the Federal Government, in 1921, the huge sum of \$259,865,213.85, Alabama, with a population nearly two-thirds that of Massachusetts, contributed only \$18,429,531.41, or about 7 per cent. of the amount collected in Massachusetts, and Mississippi, with a population nearly one-half that of Massachusetts, turned over only \$8,996,571.95, or less than 4 per cent. of the amount collected in Massachusetts.

Massachusetts should therefore consider with special care all projects for Federal activities, involving, as they do, the expenditure of large sums of money.

* * * *

To reduce the problem to its simplest terms, let us suppose that the sole function of the United States was road building, and that \$100,000,000 was annually collected by income taxes, of which \$5,000,000 came from citizens of Massachusetts, but that only \$2,000,000 was spent on Massachusetts roads. It is obvious that Massachusetts loses \$3,000,000 on the transaction, and would be \$3,000,000 better off if it built its own roads with its own money.

We are told that if we will appropriate a certain sum the Federal Government will 'give' us an equal sum, but this Federal money is not really a gift. It is a return of, perhaps, 30 cents on each dollar of additional Federal taxes collected from our citizens to meet the total outlay among the several States. By every such transaction we lose, and the majority of the States gain.

The second part of the order raises the question of the constitutionality of these practices, and, more specifically, of the Sheppard-Towner Act, a bill for the acceptance of which is now

before us. This act gives outright to each State the specific sum of \$10,000 in the first year, and \$5,000 thereafter, irrespective of population, and supplements this with a further sum of \$1,000,000, to be apportioned among those States which appropriate a like amount, \$5,000 to each, and the balance according to population. The expense rests with special burden on Massachusetts and the other highly developed industrial States. For example, Nevada, with a population of only 77,000, gets the same specific appropriation as Massachusetts, with a population of nearly 4,000,000; and Mississippi, which pays less than 4 per cent. of the internal revenue paid by Massachusetts, but has a population nearly half that of Massachusetts, gets the same specific appropriation as Massachusetts, and in addition gets an appropriation based on population nearly one-half as large as the appropriation based on population apportioned to Massachusetts. The fact is that a very small group of States, of which Massachusetts is one, pay most of the bills for the entire enterprise. The great majority of States get more than they contribute, and no wonder they are enthusiastic about this method of legislation.

* * * *

We are dealing with the fundamental question of the power of the Federal Government, a question which transcends in importance any specific piece of legislation which may be offered for our acceptance.

By Article X of the amendments to the Constitution, it is provided that the powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States, respectively, or to the people. In other words, the powers of Congress are strictly limited to those delegated by the Constitution.

Unlike the Federal Highway Act, which may be supported by virtue of the specific delegation to Congress by the Constitution of the power to establish post-offices and post-roads, and to regulate commerce, no specific power can be found in the Constitution to support the Sheppard-Towner bill. If constitutional, it must be supported solely on the power to lay and collect taxes, etc., to pay debts and provide for the common defence and general welfare of the United States. But this clause gives Congress no power to legislate on any and all subjects it deems to be for the general welfare. Should any such construction be adopted, the very existence of the States would be threatened. Local self-government would be at an end. Congress would wield the supreme power. Every activity of our lives would be regulated from Washington. And we should soon be in the condition of France, where every detail of government is regulated from Paris, and which, in treatises on government, is cited

as a horrible example of bureaucracy gone mad. In fact, by reason of the immense size of our country, and the great diversity in climate, needs, and conditions, the evils of bureaucracy would be far greater.

"It is high time that we should put this Federal power to the test."

Since this was written, the Committee on Public Health and Public Welfare, sitting jointly, have voted against the acceptance of the Sheppard-Towner Act.

The Spencer bill, providing for maternity benefits, also failed to secure support of the committee. This probably means that both bills relative to maternity and infant welfare will not be enacted in this session of the legislature.

MEETING OF THE ASSOCIATION OF ASSISTANT PHYSICIANS OF MASSACHUSETTS DEPARTMENT OF MENTAL DISEASES.

THE fifty-third meeting of the Massachusetts Association of Assistant Physicians of the Department of Mental Diseases was held at the Psychopathic Hospital, Boston, Mass., on March 1, 1922. Forty-nine members were in attendance. At the request of Dr. H. G. Ripley, wives of members—some twenty in number—were present. After inspection tour through the institution, a buffet luncheon was served at 1 o'clock P.M. At 2 P.M., the meeting was called to order by the President, Dr. R. M. Chambers, and after a short business meeting, the program was presented by the Staff of the Psychopathic Hospital. Doctors H. G. Solomon and L. J. Thompson were in charge of the clinic. The first case demonstrated the technique of intraventricular puncture with drainage and introduction of Swift-Ellis serum. In Case 2, cistern puncture was made and the same procedure followed. Case 3 showed intravenous injection of arsphenamine by syringe method, followed by spinal drainage, continued until negative pressure was produced. Two greatly improved cases in general paralysis, one luetic encephalitis and two cases of lethargic encephalitis, with Parkinsonian syndrome, were then presented. Meeting adjourned.

N. A. DAYTON, *Sec. and Treas.*

DEPARTMENT OF PUBLIC HEALTH LABORATORY IN THE WESTERN PART OF THE STATE.

CHAPTER 4 of the Resolves of 1921 contained a resolve for the investigation as to the necessity of establishing and maintaining a laboratory in the vicinity of Springfield.

The purpose of this resolve was to ascertain the possibility of more prompt service in reporting on specimens sent for diagnostic purposes. This work has been attended to by the Department of Public Health and the results appear in three conclusions, as follows:

1. It appears that a great economic gain would be effected by the food and drug inspectional work.

2. There would be in all probability an increase in the distribution and use of biologic products.

3. No great saving in time would be effected by the use of a bacteriological laboratory in the western section of the State over the use of the present laboratory facilities of the Department.

Inasmuch as the establishment of a laboratory for bacteriological diagnoses of communicable disease was the primary object in seeking the establishment of a laboratory in the western section of the State, we now recommend that this be not done at this time in view of the facts herein stated.

DEATHS FROM LETHARGIC ENCEPHALITIS ("SLEEPING SICKNESS").

THE Department of Commerce, through the Bureau of the Census, has today (March 8, 1922) issued a statement showing the number of deaths in 1920 from lethargic encephalitis, which is often called, in this country, "sleeping sickness," although the true "sleeping sickness" is a very different disease, found, principally, in Africa.

In 1920, in the death registration area of the United States, lethargic encephalitis was given as a cause of death on 1,505 death certificates, as against 589 in 1919, giving mortality rates, respectively, of 1.7 and 0.7 per 100,000 population. Deaths from this cause were reported for every state in the registration area, except Delaware; the largest number in any one state was 364, reported for New York State, and giving a rate of 3.5 per 100,000 population.

Cities are credited with 1,129 of the 1,505 deaths, and rural sections with 376, with rates, respectively, of 2.6 and 0.8 per 100,000.

The white population, with 1,453 deaths from lethargic encephalitis, has a rate of 1.8 per 100,000 population, while the colored population, with only 52 deaths, has a rate of 0.7. Males and females contribute about equally to the total deaths from this cause, with 781 males and 724 females.

More of these deaths appear for persons aged 20 to 29 than for any other age group, though nearly as many are found for the age groups 30 to 39, and 40 to 49; and no age group escapes entirely.

NATIONAL LEGISLATION.

COMPENSATION OF PHYSICIANS AND NURSES.

THE Joint Congressional Committee which has been at work for several weeks drafting a bill to readjust the pay of officers in the Army, Navy, and Public Health Service, has agreed upon the terms of this legislation.

The following table summarizes the provision for base service pay of officers. In it we use the title of officers in the Public Health Service, with the corresponding army grade in parentheses:

Assistant Surgeon General (Colonel)	
Over 26 years' service.....	\$4,000
First appointment above captain.....	4,000
Appointed under Sec. 24, Act June 4, 1920..	4,000
Less than 26 years' service.....	3,500
Senior Surgeon (Lieutenant Colonel)	
Over 30 years' service.....	\$4,000
Over 20 and less than 30 years.....	3,500
First appointment above second lieutenant..	3,500
Appointed under Sec. 24, Act June 4, 1920..	3,500
Less than 20 years' service.....	3,000
Surgeon (Major)	
Over 23 years' service.....	\$3,500
Over 14 and less than 23 years' service....	3,000
First appointment above second lieutenant..	3,000
Appointed under Sec. 24, Act June 4, 1920..	3,000
Less than 14 years' service.....	2,400
Past Assistant Surgeon (Captain)	
Over 17 years' service.....	\$3,000
Over 7 and less than 17 years' service.....	2,400
First appointment above second lieutenant..	2,400
Present rank July 1, 1920, or earlier.....	2,400
Less than 7 years' service.....	2,000
Assistant Surgeon (First Lieutenant)	
Over 10 years' service.....	\$2,400
Over 3 and less than 10 years' service.....	2,000
First appointment above second lieutenant..	2,000
Less than 3 years' service.....	1,500

In addition to this base pay, there are also rental and ration allowances. These vary according to whether the officer has dependents. The sum for rental ranges from \$480 a year for an assistant surgeon to \$1440 a year for an assistant surgeon-general. The sum allowed for rations is \$237.25 a year for one ration. The allowance for subsistence is based upon the cost of food in the calendar year 1922. If the cost of food in subsequent years should be reduced, the allowance for subsistence will be accordingly reduced. There is also an increase for length of service in the grade. Thus, a surgeon in the Public Health Service who has completed fourteen years of service and has dependents, would receive a base pay of \$3000, rental allowance of \$1200, and ration allowance of \$711.75 (three rations allowed), a total of \$4,911.75 a year. If he had twenty years of service he would get a base pay of \$3,900, with the same allowances.

The annual base pay of the Surgeon-General of the Public Health Service is expressly set at \$6,500.

Nurse Corps. The bill allows the following amounts for pay of nurses: During the first three years of service, \$840; from the beginning of the fourth year of service until the completion of the sixth year of service, \$1,080; from the beginning of the seventh year of service until the completion of the ninth year of service, \$1,380; from the beginning of the tenth year of service, \$1,560. Superintendents of the Nurse Corps shall receive a money allowance at the rate of \$2,500 a year; assistant superintendents, directors, and assistant directors, at the rate of \$1,500 a year, and chief nurses at the rate of \$600 a year, in addition to their pay as nurses. Nurses are also given an allowance for subsistence, the same as officers.

This proposed legislation is reported to have met with approval by medical officers in the Army, Navy, and Public Service.

THE TUBERCULOSIS FIGHT.

THE fighting equipment against tuberculosis consists of more than 700 well-equipped sanatoria, thousands of enthusiastic workers, 1,200 tuberculosis associations, over 600 tuberculosis clinics and a large number of traveling dispensaries and clinics, thousands of tuberculosis nurses, several thousand open-air schools and fresh-air classes, and a thoroughly aroused public opinion on the need for the control of the disease.

The time will come when it will be a disgrace for an American community to have a death rate from tuberculosis of over 10 per 100,000 population.

A HIGH DEATH RATE IN SCOTLAND.

DURING the week ended January 21, 1922, 379 deaths from influenza were registered in sixteen principal towns of Scotland. The population of these towns collectively is given as 2,370,600. This gives an influenza death rate for the week, on an annual basis, of 8.33 per thousand population.

DR. WILLOUGHBY, Medical Officer of Health for the Port of London, reports that the number of rats destroyed in warehouses from October 23 to November 26, was 2,522. On vessels during voyages to the port, 1,055 rats were killed, and on vessels in dock, 2,024. Since February, 1921, the total number of rats destroyed amounted to 1,209,169.—*Medical Press and Circular.*

Obituary.

JOSEPH WARD BATTERSHALL, M.D.

DR. JOSEPH WARD BATTERSHALL, a retired fellow of the Massachusetts Medical Society, and formerly in the British Emigration Service, died at his home in Attleboro, February 23, 1922, at the age of 78.

Dr. Battershall was born in Troy, N. Y., May 1, 1842, his father, Ludlow A. Battershall, a wholesale grocer, and his mother, Eustasia Ward, daughter of Joseph Ward. The son had his education in the schools of Troy, and his medical training at the College of Physicians and Surgeons, Columbia University, New York City, where he took his M.D. in 1874. He entered the Pacific Mail Service, spent the year 1876 as sanitary inspector in New York, and in 1877 was appointed surgeon to the Schoolship *St. Mary*. From 1878 to 1879, he was in the British Emigration Service, on vessels plying between London and Sydney, Australia; he also made a voyage to China as ship's surgeon. Dr. Battershall settled in Yarmouthport, Mass., in 1879, joining the State Medical Society in that year and moving to Attleboro in 1881 to spend the rest of his life. He had served Attleboro as a member of the board of health, and had been in active practice up to a year and a half ago.

In 1887, he married Mary H., daughter of Robert Wolfenden, a graduate of the Woman's Medical College of Pennsylvania, in 1879. She survives him, as does a son, Dr. Jesse Wolfenden Battershall, now school physician of Attleboro. Both mother and son are members of the Massachusetts Medical Society.

Correspondence.

AN OSTEOPATHIC DIAGNOSIS.

The following letter has been received by a person who consulted an osteopathic physician who lives in this vicinity:

Dear Mrs. Blank:

The examination of your blood by the Abrams test shows the following:

Congenital syphilis—30 ohms.

Streptococcus infection of the left antrum, left ethmoid, right antrum, right ethmoid, and slight involvement of the right sinus.

Very slight gonorrheal reaction.

Colicsepsis.

The osteopathic examination shows lesions (spinal vertebrae slightly deviated from their normal position) of the first cervical vertebra, a first, second and third dorsal vertebrae, third lumbar, fifth lumbar, a slight convex curve on the left from the seventh to the twelfth dorsal, a lesion of the left innominate bone.

These conditions are amenable to treatment by the Oscilloclast and osteopathic adjustment.

The fee for this work is three hundred dollars (\$300.00), the minimum two hundred dollars (\$200.00) payable in advance.

Yours truly,

BOSTON LYING-IN HOSPITAL STAFF.

The staff of the hospital as appointed for the year 1922 is as follows:

Visiting Obstetrician, Franklin S. Newell; Assistant Visiting Obstetricians, James R. Torbert, R. L. DeNormandie, F. C. Irving, Foster S. Kellogg, J. B. Swift, Jr.; Out-Patient Obstetricians, D. L. Jackson, D. J. Bristol, Jr., T. R. Goethals; Assistant Obstetricians to Out-Patients, William B. Young, W. T. S. Thorndike, John Rock; Visiting Pediatricist, Oscar M. Schloss; Assistant Visiting Pediatricists, Richard S. Eustis, Warren R. Sisson; Pathologist, S. Burt Wolbach.

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH

REPORTED WEEK ENDING MARCH 4, 1922.

Disease	Cases	Disease	Cases
Chicken-pox	114	Pneumonia, lobar...	310
Diphtheria	192	Scarlet fever.....	215
Dog-bite	4	Septic sore throat..	4
Encephalitis lethargica	6	Syphilis	42
Epidemic cerebro-spinal meningitis.	1	Suppurative conjunctivitis	6
German measles....	5	Trachoma	5
Gonorrhea	82	Tuberculosis, pulmonary	169
Influenza	904	Tuberculosis, other forms	22
Measles	537	Typhoid fever.....	8
Mumps	96	Whooping Cough....	90
Ophthalmia neonatorum	15		

THE COMPOSITION OF THE NATIONAL HEALTH COUNCIL.

MEMBERS, OFFICERS AND STAFF.

DIRECT MEMBERS. American Public Health Association, American Red Cross, American Social Hygiene Association, American Society for the Control of Cancer, Conference of State and Provincial Health Authorities of North America, Council on Health and Public Instruction of the American Medical Association, National Child Health Council, National Committee for Mental Hygiene, National Organization for Public Health Nursing, National Tuberculosis Association.

CONFERENCE MEMBER. United States Public Health Service.

COÖPERATING THROUGH THE NATIONAL CHILD HEALTH COUNCIL. American Child Hygiene Association, Child Health Organization of America, National Child Labor Committee.

OFFICERS. Livingston Farrand, M.D., Chairman; Lee K. Frankel, Vice-Chairman; S. J. Crumrine, M.D., Recording Secretary; Wm. F. Snow, M.D., Treasurer.

STAFF. D. B. Armstrong, M.D., Executive Officer; James A. Tobey, Washington Representative; Lawrence Marcus, Executive Assistant; Helen B. Eveline, Secretary and Assistant.

National headquarters, 411 Eighteenth street, N.W., Washington, D. C.

New York office, with the Common Service Committee, 370 Seventh avenue.

INSTITUTE FOR NURSES.

In making the final arrangements for the Institute for Nurses of the Boston Tuberculosis Association, the date has been set for Tuesday, March 28, with morning and afternoon sessions at the Boston Medical Library. Dr. Hermann Biggs, State Health Commissioner of New York, will speak, the list presenting papers including Miss Mary E. Marshall of New York City, Secretary of the Nursing Division, National Tuberculosis Association; Miss Mary E. Edgcomb of Providence, Supervisor of Tuberculosis Work, Providence District Nursing Association; Miss Margaret G. Weir of Beverly, Executive Secretary of the Public Health Dispensary Commission; Dr. Sumner Remick, Director of the Division of Tuberculosis, Massachusetts Department of Public Health, and Dr. John B. Hawes, 2d, President of the Boston Tuberculosis Association. All nurses are invited.

BOOKS FOR REVIEW.

THE JOURNAL acknowledges the receipt of the following books for review:

What Is Social Case Work?—By Mary E. Richmond. Published by Russell Sage Foundation. 268 Pages. Price \$1.

Therapeutics—Preventive Medicine—Practical Medical Series, 1921.—By Bernard Fantus and William A. Evans. Published by The Year Book Publishers, Chicago. 386 Pages. Price \$1.75.

Abdominal Pain.—By Norbert Ortner. Published by Reiman Company, New York. 362 Pages.

Protein Therapy and Non-Specific Resistance.—By William F. Petersen. Published by The Macmillan Company, New York. 314 Pages. Price \$4.50.

A Laboratory Manual for Comparative Vertebrate Anatomy.—By L. H. Hyman. Published by The University of Chicago Press. 380 Pages. Price \$2.50.

The Mechanics of the Digestive Tract.—By Walter C. Alvarez. Published by Paul B. Hoeber, New York, N. Y. 192 Pages. Price \$3.50.

The Spleen and Some of Its Diseases.—By Sir Berkeley Moynihan. Published by W. B. Saunders Company, Philadelphia, Pa. 129 Pages.

Infant Feeding (4th Edition).—By Clifford G. Grillee. Published by W. B. Saunders Company. 397 Pages. Price \$4.50.

Psychoanalysis: Its Theories and Practical Application.—By A. A. Brill. Published by W. B. Saunders Company, Philadelphia. 498 Pages. Price \$5.00.

Clinical Electrocardiography.—By Frederick A. Willus. Published by W. B. Saunders Company, Philadelphia. 188 Pages. Price \$5.00.

Diseases of the Skin (9th Edition).—By Henry W. Stelwagon and Henry K. Gaskill. Published by W. B. Saunders Company, Philadelphia. 1313 Pages. Price \$10.00.

Lehrbuch der Grenzgebiete der Medizin und Zahnheilkunde.—By Dr. Julius Misch. Volumes I and II. Published by F. C. W. Vogel, Leipzig. 672 Pages.

Foods of the Foreign-Born in Relation to Health.—By Bertha M. Wood. Published by Whitecomb & Barrows. 98 Pages. Price \$1.25.

An Essay on the Physiology of the Mind.—By Francis X. Dercum. Published by W. B. Saunders Company. 150 Pages. Price \$1.75.

The Habit of Health.—By Oliver Huckel. Published by Thomas Y. Crowell Company, New York, N. Y. 128 Pages. Price \$1.00.

The Intestinal Protozoa of Man.—By Dobell and O'Connor. Published by William Wood & Co., New York, N. Y. 211 Pages. Price \$4.50.

NOTICES.

A meeting has been arranged by the Boston Association of Cardiac Clinics to be held at the Boston City Hospital, Thursday, March 16, 1922, at 8:15 p. m. Dr. W. Irving Clark, of Worcester, will speak on Heart Disease in Industry. Dr. Harold H. Brittingham, of Boston, will speak on Exercise Tests and Vital Capacity. The meeting is open to all interested in the problems of heart disease.

THE BOSTON ORTHOPEDIC CLUB.—There will be a meeting of the Boston Orthopedic Club, on Monday, March 20th, at 8:15 o'clock, at the Harvard Club. Program: "An Outline of the Metabolism and Treatment of Arthritis from the Practical Standpoint." Dr. Ralph Pemberton, Philadelphia. The discussion will be opened by Dr. Roger I. Lee, Dr. George R. Minot, Dr. Robert W. Lovett, and Dr. Joel E. Goldthwait. A large attendance is requested. Frank R. Ober, Secretary.

BOSTON MEDICAL HISTORY CLUB.—There will be a meeting at the Boston Medical Library, Friday, March 17, at 8:15 p. m. Papers: Mr. Alfred Ela, "Protracted Pregnancies"; Dr. Frederic T. Lewis, Anatomical Notes, (1) Some Pregnancies not Protracted (Pimens), (2) The Galenic Description of the Structure of Blood-vessels, (3) The Significance of the term Hippocampus (Arantius). At the annual meeting the following officers were elected: Dr. John W. Farlow, President; Dr. Malcolm Storer, Vice-President; Dr. John W. Cummin, Secretary-Treasurer; Mr. James F. Ballard, Curator.

THE BOSTON TUBERCULOSIS ASSOCIATION is planning an Institute for Nurses on the same plan as the recent one by this Association, for Physicians. It is intended to give to the nurses the latest facts with reference to the care of patients with tuberculosis, and speakers from outside the State will supplement home talent. The Institute will be in the hands of a committee including Miss Zepha M. Gardner, Superintendent of Nurses, Boston Consumptives' Hospital, Out-Patient Department; Professor Anne Strong of Simmons College, and Miss Bernice W. Billings, Executive Secretary of the Association. A location central in Boston will be selected for the Institute, the date will be Tuesday, March 21, subject to possible change, and the sessions will be in order both morning and afternoon. 7-3t

CHILDREN'S HOSPITAL.—Clinical Meetings of the Staff of the Boston Children's Hospital will be held in the amphitheatre once a month from November to May inclusive. The meetings will be held on Friday afternoons at 4:30 P.M. All members of the profession are cordially invited to be present. The dates of the meetings are November 4th, December 9th, January 13th, February 10th, March 10th, April 14th, and May 12th.

IMPORTANT NOTICE.

Announcement of meetings to be held on and after next Thursday should reach the desk of the Editor of the JOURNAL not later than next Saturday before noon. The printers do not work Saturday afternoon and the material is locked up in the forms on Monday, and goes to press Tuesday morning. The wrapping and mailing begins Wednesday. Please forward copy early.

The Boston Medical and Surgical Journal

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Original Articles.

CLINICAL DIAGNOSIS OF CARDIAC CONDITIONS.*

BY WILLIAM E. PREBLE, M.D., BOSTON.

IN 1919 there were 7596 deaths from heart disease in the State of Massachusetts, with an estimated population of approximately 3,800,000; or a death rate of 198.4 per 100,000.¹ Of this figure, 7.7 were due to acute heart infections, and 190.7 were due to chronic organic heart disease. I mention these figures to show the tremendous importance of the study of cardiac conditions, both from the standpoint of prophylaxis, and that of diagnosis and treatment.

It is my purpose to try, as far as time will permit, to sum up in this paper some of the more important points in the *clinical* diagnosis of chronic heart disease.

Newer Diagnostic Aids. The past twenty years have seen enormous additions to our knowledge on the subject. More exact knowledge of the anatomy, physiology, and functioning capacity of the heart has been obtained. Instruments have been devised for taking arterial and venous pulse tracings, for measuring the heart volume in its different phases, for recording the intra-cardiac pressure in the different chambers, and even for recording graphically the heart sounds. The electro-cardiograph has been

perfected, and has vastly increased our knowledge of the incidence and progress of normal and pathological heart impulses. The x-ray has added its share to our knowledge of cardiac hypertrophy and other anatomical abnormalities. The wealth of our newer knowledge is so great, and so much of it has been obtained by the use of these various instruments of precision, that there has been some tendency to discredit our usual methods of physical examination and diagnosis, and to assume that accurate cardiac diagnosis can be made only by experts, together with the use of the x-ray, the electro-cardiograph, and the various other instruments by which our knowledge has been so remarkably increased.

On the contrary, we should assume Mackenzie's² attitude as shown by his statement that "In routine practice it is not usually necessary to take graphic records. If one is trained to make careful and minute observations by the ordinary methods, and to have these checked by graphic records, one can ultimately acquire the power of recognizing the majority of movements of the circulation without graphic records."

We should congratulate ourselves that the workers who have so largely added to our knowledge of cardiac physiology and pathology by the use of the various instruments mentioned above, have been able to correlate the pathological and clinical findings so successfully that in most cases diagnoses can now be made without the aid of the instruments.

*Read before Medical Section, Canadian Medical Association, Halifax, N. S., July 5, 1921.

Much work has also been done in attempting to classify cardiac disorders more scientifically, beginning with Cabot's³ classification on an etiological basis, and elaborated in much detail in White's so-called triple diagnosis.

General Divisions.—We can divide cardiac disorders roughly into (1) valvular, in which there are definite organic lesions of the valves, with or without myocardial changes, and (2) myocardial, in which there is pathology of the heart muscle or conduction system without organic valve lesions.

In this latter class should probably be included cases of so-called idiopathic hypertension, not because they are *primarily* cardiacs, but because they are *potentially* cardiacs, and do not seem to belong in any other class of diseases.

White's Triple Diagnosis.—Dr. Paul D. White⁴ has worked out a rather elaborate classification, or so-called triple diagnosis, of cardiac disorders. The cases are considered first from an etiological standpoint, and are grouped as rheumatic, arterio-sclerotic, syphilitic, cardio-renal, congenital, thyroid, and miscellaneous; the latter group including hearts damaged by diphtheria, pneumonia, typhoid, and other causes. The second classification is on structural lines—for instance, mitral regurgitation, aortic stenosis, etc. The third classification considers function, as, for instance, auricular (or atrial) fibrillation, paroxysmal tachycardia, heart block, etc. A given heart might be (1) rheumatic with (2) a mitral stenosis and (3) an auricular fibrillation. This triple classification is a distinct advance over previous methods. If the case has a history of rheumatism, whether acute or chronic, prophylactic measures should be immediately instituted in order to prevent recurrence of the rheumatism and further damage to the heart, especially if the patient is young.

In Christian's⁵ series of 407 cases of chronic myocarditis, 112 gave a history of antecedent rheumatism. In Cabot's³ series of 600 cases of heart failure, 278 were classed as rheumatic. In Smith's⁶ series of 62 cases of adherent pericarditis, a previous history of rheumatism was found in 28 cases. If rheumatism, acute and chronic, is as important an etiological factor as the above figures indicate, the importance of a classification along etiological lines is apparent. The same statement applies to those cardiac disorders caused by syphilis and hyperthyroidism. In each of these cases prophylactic treatment should be instituted as soon as the diagnosis is made. The second part of White's diagnosis would be of value mainly in valvular disorders, and the third part in myocardial disorders and for prognosis.

Diagnosis of Organic Valvular Disease.—Ten years ago cardiac diagnosis was chiefly a matter of interpreting murmurs. Some of the old ideas regarding valvular disease are still re-

tained, but many of them have been proven unreliable. The following paragraphs on valvular disease are based largely on the work of Mackenzie², Lewis⁷, White⁸, Christian^{5,9}, and Reid¹⁰, who are in substantial agreement on nearly all important points.

"A very loud, blowing, or rough systolic murmur marking the first sound, heard best at the apex and transmitted well to the axilla and perhaps to back, is good evidence of mitral damage, particularly if there is also a systolic thrill palpable at the apex." A rheumatic history and enlarged heart with above is pathognomonic. Enlargement in region of left auricle and an accentuated pulmonic second sound are also valuable signs. The mere presence of a systolic murmur, whatever its character and point of greatest intensity, is rarely indicative of organic mitral disease, in the absence of other corroborative evidence. Organic mitral insufficiency, without stenosis, is comparatively rare, especially in older people. These murmurs are probably due to poor approximation of flaps, or to stretching of the mitral ring, or papillary muscles, and may usually be disregarded. Although most cardiologists seem to agree that functional regurgitation of this kind is benign and inconsequential, it seems reasonable to suppose that the increased work thrown on the heart, and the slightly increased blood pressure which is so frequently found in these patients, may be conducive to cardiac hypertrophy, and eventually to myocardial disorders. It seems to me that observations carried over a long period of years will be necessary to settle this question.

A presystolic roll at the apex, especially if it begins a distinct interval after the second sound and increases in intensity to the first sound, is *prima facie* evidence of mitral stenosis. It is usually accompanied by a presystolic thrill. The second sound at the base is frequently reduplicated, and sometimes the first sound at the apex. Occasionally the third heart sound is prominent.

White emphasizes the importance of a mid-diastolic murmur, which persists in auricular fibrillation, while the presystolic roll and thrill disappear. The Austin Flint, a late diastolic murmur, sometimes heard in cases of aortic regurgitation, and the Graham Steell, an early, high-pitched diastolic murmur, usually heard best at the third left costal cartilage, should be differentiated respectively from the presystolic roll and the mid-diastolic murmur of mitral stenosis. The heart is almost always enlarged transversely. The myocardium is frequently involved and a large percentage of the cases of auricular fibrillation have a mitral stenosis. Embolism and hemoptysis are fairly frequent accompaniments.

Uncomplicated tricuspid lesions are rare and hard to diagnose. Functional regurgitation is probably quite common. If a mid-diastolic mur-

mur is heard over the lower half of the sternum, especially in the presence of a mitral lesion, tricuspid stenosis may be suspected. Cyanosis and other evidence of venous stasis without decompensation are also suggestive.

Aortic regurgitation may be diagnosed from the presence of a diastolic murmur at the left border of the sternum, usually in the fourth interspace, beginning early in diastole, and associated with a Corrigan pulse. Pistol shot sound over the femorals, Duroziez's sign, and capillary pulse are usually present. The heart is almost always enlarged downward and to the left.

Aortic stenosis may be assumed from the presence of a rough systolic murmur accompanied by a thrill in the second right interspace, transmitted upward and heard in the vessels of the neck. The aortic second sound is diminished or absent.

Pulmonary lesions are rare, unless associated with other lesions. Regurgitation gives an early diastolic murmur to left of sternum without a Corrigan pulse. X-ray and electro-cardiography are of assistance in determining right or left ventricular hypertrophy. Functional pulmonary regurgitation gives the Graham Steell murmur.

Pulmonary stenosis is much more common as a congenital lesion than as due to infectious disease. A loud systolic murmur in second left interspace, accompanied by a systolic thrill, and not transmitted to the vessels of the neck, is presumptive evidence of pulmonary stenosis.

Combined valvular lesions may be difficult to diagnose because of neutralization of signs of the individual lesions. It is well to explain the signs and symptoms by the fewest possible lesions.

Myocardial Disorders.—While there is a wealth of literature on valvular cardiac disease, comparatively little has been written on disease of the myocardium until within recent years. This was for the reason that before the invention and perfection of the electro-cardiograph, polygraph, and other instruments of precision, comparatively little was known about myocardial disorders. The knowledge acquired through the use of these instruments enables us to clinically diagnose most of the more serious disorders.

Muscle function determines cardiac efficiency. The chief suggestive symptoms of myocardial disease are those of a "weak heart," or heart failure—dyspnea on exertion, orthopnea, precordial pain, faintness or fainting, palpitation, dizziness, etc. Usually patients with any of the serious arrhythmias are conscious of the irregularity. The objective signs are more numerous and more complex. The tick-tack (foetal) rhythm, the gallop rhythm, and the pulsus alternans are always signs of serious myocardial disorder. Of the untoward arrhythmias, that due to auricular fibrillation is the most

common, constituting 50 per cent. of all persistent irregularities, according to Lewis. It is easily diagnosed because of the absolute irregularity—the old "delirium cordis." There is usually a marked discrepancy between the radial pulse and the heart beat as heard with a stethoscope. It may be intermittent, but frequently is constant after its initial onset. While always a sign of serious disease, it should be remembered that many of these patients live for years in comparative comfort.

Auricular flutter is a much less common disorder. In this condition the whole auricle beats, but it beats very rapidly, and the impulses are rarely all transmitted to the ventricle. The auricular rate may be from 200 to 350 per minute, and the ventricular rate is usually a fairly constant quotient of this figure divided by two, or perhaps four, but may be irregular. A pulse tracing or electro-cardiogram may be necessary for diagnosis. Signs of cardiac distress plus very rapid jugular pulsation with the ventricular rate an even quotient of the auricular, would be presumptive evidence of auricular flutter. Another point is the rather marked constancy of the ventricular rate, regardless of position, exertion, or the exhibition of drugs.

Paroxysmal tachycardia seems closely related to auricular flutter. In this condition the auricular rate is usually 150 to 200, and the impulses are all carried through to the ventricle. The duration of attacks in the same patient is quite constant. The attack starts suddenly, and ends just as suddenly. Sometimes pressure on the vagus will stop the attack.

Probably the most common form of irregularity is that due to premature contractions of the auricle or ventricle. The radial pulse skips a beat, but the stethoscope reveals the fact that one beat follows another at a very short interval, and there is then a compensatory pause until the regular time for the third beat. Most authorities attach very little significance to these premature contractions, or "extrasystoles." However, as they are practically all agreed that auricular fibrillation, auricular flutter, paroxysmal tachycardia, and extrasystoles, are related conditions, there would seem to be reasonable ground for assuming that the extrasystole may be a sign of beginning myocardial disease.

Cardiac Disorders of the Obese.—There is one other class of cases I wish to mention, and that is the obese with the so-called "fatty heart." Apparently the symptoms of cardiac embarrassment in these cases may be due either to the deposition of fat about the heart and below the diaphragm, or to actual fatty degeneration of the heart muscle. (Strumpel¹¹, Fussell¹².) At any rate, we know that the very obese are prone to have heart and arterial disease, and to die before their time.

Of 600 consecutive cases of obesity seen in private practice, 388, or approximately 65 per

cent., had mitral regurgitation, functional or organic. Of these, 496 were treated dietetically to reduce their weight. In 58 the murmur disappeared together with all signs of cardiac distress and usually with a marked drop in blood pressure. Most obese patients have a more or less elevated blood pressure which promptly drops to approximately normal, under treatment, provided there is no other cause for the hypertension.

Insurance companies do not reject fat people because of sentiment, as per the old adage that "Nobody loves a fat man," but because they are poor insurance risks, on account of their proneness to develop disease of the heart and arteries.

I mention this class of cases because so little has been written about them, and because in my opinion, they are all *potential* cases of myocardial disease, unless appropriate treatment is instituted.

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ANKYLOSIS OF THE JAW.

By R. H. GILPATRICK, M.D., BOSTON.

[From the Surgical Department of the Boston Dispensary.]

A. N., a Holland boy of fifteen years, was brought to the clinic on May 10, 1921, with the following history: At the age of one year he had scarlet fever, complicated by infection of both mastoids, for which some six or seven operations were performed at the time and subsequently up to the age of six, when he migrated to Canada with his family. During the following three years there would appear to have been performed twelve more operations of varying sorts, the last by Dr. Starr at the Children's Hospital in Toronto. This last was a radical mastoid. The notes of the hospital at that time describe an almost complete ankylosis of the inferior maxilla, and the history from the parents would indicate that some marked degree of limitation of motion was evident from the time of the first operations during the second year of life, or fourteen years before coming under our observation.

It is evident from superficial examination at this time that very extensive suppurative processes have been endured, for there are scars over both mastoids, in front of both ears, on the sides of the neck and cheeks, one forward below the angle of the mouth. There is a complete right-sided facial paralysis, evidently as a result of suppuration of the middle ear and in front of the external auditory meatus and possibly from the numerous incisions in that area which have from time to time been made for drainage. The inferior maxilla is markedly undeveloped, as shown in the photographs and the skiagrams. The angles are of the infantile type. There is an unerupted molar on each side, both inclined at a considerable angle with the crowns forward and impinging upon the next teeth in front. There is complete ankylosis with not the slightest degree of mobility either up and down or from side to side. This is said to have been so for the past six years, or since soon after the last operation. There is considerable impairment of hearing on both sides, more marked on the right. The skiagrams of the temporo-mandibular joints are unsatisfactory, as they are likely to be. They indicate, however, a bony union on the right side and a fibrous ankylosis on the left.

How the boy has been able to sufficiently nourish himself, particularly these past six years, is difficult to understand, for he is generally very well developed for his age and is nearly six feet in height. He has had several teeth removed for the purpose of obtaining an entrance for food, but the under jaw being so short, the lower incisors and all teeth save the last molars on each side below fail to meet those above, and the result is that the lower jaw shuts past the upper, the lower incisors being firmly indented into the hard palate about one cm. back of the upper incisors. This has very seriously narrowed the buccal cavity, so that he has very little room for manipulation of the tongue and still less for the reception of food. His method has been to very thoroughly macerate all food, confining himself to such as could be so treated, form it into balls or small masses, introduce these between the lips in front of the gap left by removal of the teeth, then painstakingly force the food through as well as possible by manipulation with thumb or finger, and then carry it about with the tongue to be almost immediately swallowed. It has been a slow and tedious process, as testified to by his mother, and what it must have meant to one with the appetite of an actively growing boy of his age can scarcely be comprehended. He is not at present in any apparent danger from actual starvation, but the handicaps of his present condition are very obvious. Never to have known the satisfaction of a meal, never to have been able to eat other than foods adaptable to complete maceration in the plate, never to have been able to express himself save through tightly clenched and overlapping teeth, without room enough in the mouth even for active use of the tongue, such a combination of distress has made



Before operation, showing complete ankylosis, with lower teeth impressed into palate inside upper teeth.



Before operation, showing deformity from non-development of lower jaw, caused by disuse.



Before operation, showing deformity



Before operation, showing deformity.



Ten days after operation. Extent of voluntary movement.



Ten days after operation, showing scars.

him quite heedless of his facial palsy. But in spite of it all he has evidently persisted in a life of activity, both mentally and physically, and is above the average in intelligence.

After some study of the case, it appeared probable that we would have to deal with an extensive union of the condyle of the lower jaw to the glenoid, some considerable involvement of the coronoid insertion of the temporal muscle in the osseous overgrowth all on the right side, and a firm, fibrous ankylosis on the left. Realizing the likelihood of the fibrous ankylosis offering very serious difficulties, we yet decided that the right side would better be attacked first. Some unusual freedom of movement during operation was offered on the right by reason of the seventh nerve, already destroyed, not requiring such careful attention and avoidance. It was determined, however, to proceed, so far as possible, as if the nerve were normal. It was hoped that division of the union about the joint would be sufficient to free that side, and that the left side could then be attacked at the same sitting.

In May, 1921, gas and ether were given by Dr. Temple, at first by the inhaler and later through a tracheal tube, and throughout the rather long operation there was at no time the least limitation of the operative procedure from the anesthesia. An incision one and a half inches in length was made in front of the right ear from a point one-half inch below the zygoma upward and just sufficiently forward to avoid the temporal artery and auriculo-temporal nerve. This was carried down to the bone and all bleeding secured. All further dissection was carried out, so far as possible, with the idea of elevating the parotid and continuing the work beneath it. It was soon demonstrated that the hypertrophic process was much more extensive than had been realized. The whole space beneath the zygoma and extending forward to completely envelop the coronoid process was filled with firm, new bone. The temporo-mandibular articulation was surrounded by a dense mass of the same. A second short incision over the anterior extremity of the zygoma, through which the zygoma could be there divided with the motor saw, made it possible to elevate the zygoma and secure added space. The mass of new bone was gradually reamed and burred out, the condyle of the jaw amputated and the space freed, but still the jaw was as firmly fixed as ever. It became evident that the temporal muscle must be sacrificed, and the coronoid process was therefore removed, leaving the lower jaw without support by either temporal or masseter. When this was thoroughly done, it was discovered that the mouth could be opened. A tonsil gag of the common type was easily inserted and the jaw forced to extreme depression. This demonstrated that the left side was uninvolved and required no treatment. The space above the stump of the condyle of the inferior maxilla and between it and the floor of what had once been the glenoid was further en-

larged and the pterygoids thus brought clearly into view were seen to be apparently normal.

The next step was the preparation of a flap of fat and fascia for the new articulation. This was secured from beneath the skin anteriorly to the original incision, and having as wide a base as possible and the base downward with the belief that by so cutting a better blood supply could be expected. A flap of quite sufficient proportions was thus freed, carried into the cavity over the stump of the condyle and sutured to the pterygoid muscle with fine plain gut. Movement of the jaw was now quite free, so the wounds were closed with a small tissue drain in one. The middle section of the zygoma had been completely freed and was removed, after at first planning to secure it in place by drilling and suture. It was deemed wiser not to prolong the operation or to assume the danger of sepsis being increased.

The immediate surgical convalescence was surprisingly easy. The patient was able to walk to an ambulance on the afternoon of the day of operation, for transfer to another hospital where he had of necessity to go. He was able to move the lower jaw voluntarily and without serious pain from the start. There was considerable oedema of the face for two days. The drain was removed after twenty-four hours, and healing was by first intention. By the fifth day he could masticate soft material, and he left the hospital on the eighth day. On two occasions during the first few days a gag was inserted and the jaw carried fully open to guard against the formation of limiting adhesions. From the time of his hospital discharge the usefulness of the new joint has steadily increased. The photographs indicate the degree of motion ten days after operation. He now chews everything, and save for the handicap of the facial palsy is not seriously inconvenienced.

It is believed that some degree of development in this jaw is still possible with normal use. There will, of course, always be the deformity of the receding chin and the facial palsy, but his ability to masticate food and to speak distinctly has been restored to him, and he has been restored to the society of his fellows.

It is evident from the notes of the Children's Hospital of Toronto that it was expected that this boy would return to them for arthroplasty after his recovery from the radical mastoid, but in the meantime his parents again migrated to Massachusetts. The inspiration for undertaking this case came to us from the late John B. Murphy, as so much has come to many for a long time. In his *Surgical Clinics*, Vol. I, No. 6, December, 1912, he reports a case which in many respects was so nearly identical with this one as to be remarkable. The age, sex and duration of the disease are the same in both. In his case there was osseous ankylosis on the right and fibrous on the left. The cause was undoubtedly very similar in both.

Middle ear suppuration, long continuing and

spreading forward, as is so much more likely to be the case in early life than at a later time when the cranial bones have closed up and hardened, entered the temporo-mandibular articulation and after a chronic course resulted in this chronic hypertrophic arthritis. As time went on and the infection persisted in one spot or another, the osteoarthritis extended and evidently resulted in complete ankylosis at about the age of nine years, or six years before our observation. It is worthy of remark that the masseter, temporal and pterygoids on the left side could remain in disuse for so long without permanent impairment of function. In Dr. Murphy's case it was necessary to perform the arthroplasty on the one side and to very extensively free the fibrous ankylosis on the other; not until masseter, temporal and pterygoid insertions had been severed could the mouth be opened. In case of osseous union on both sides it seems doubtful how useful a double arthroplasty of this sort would prove to be, chiefly because of the probability that with free motion up and down a very annoying freedom from side to side would be the result. But so long as one side is normal, or showing but a fibrous ankylosis, the usefulness of the operation is manifest at once. Restoration of function in any ankylosed joint is a desirable object of the greatest importance, the fundamental importance varying with the importance of the involved joint. The comparative rarity of complete temporo-mandibular ankylosis among similar joint lesions has offered comparatively little material for the fat-fascia flap method of arthroplasty in that joint, but save for the difficulty of the needed dissection and the necessity of securing great freedom of movement in a space where free access is limited by the proximity of structures which allow of no inaccurate work, the operation offers a probability of a result completely satisfactory in a disability most distressing, if not actually threatening to life.

THE PUBLIC HEALTH STATUS OF AMOEBIC DYSENTERY IN THE UNITED STATES AS POTENTIALLY INFLUENCED BY THE WORLD WAR.*

BY C. W. STILES, WASHINGTON, D. C.

Professor of Zoology, U. S. Public Health Service.

One of the results of the hookworm campaign has been a more general adoption of routine examinations in clinical laboratories, not only in this country but abroad also. Since any examination for intestinal worms, properly carried out by a competent microscopist, is likely to uncover infections with various protozoa, it is not unnatural that a more general interest has been awakened in the subject of the protozoan infections of the intestine of man. Equally

*Cutter Lecture in Preventive Medicine, Harvard University, Jan. 17, 1922.

natural is the fact that the field of protozoology has developed an increased number of specialists and that zoologists who are especially interested in protozoa should emphasize more than formerly the practical importance of their field. In fact, the influences of the studies on malaria, sleeping sickness, and amoebic dysentery, combined with the practical experience of the hook-worm campaign, have made for the development of medical protozoology as a very specialized field of contact between the physician and the zoologist.

Early in the World War, the theoretical possibility of exchange of zooparasitic diseases among the different units in the war area was obvious to many investigators, and partly from this viewpoint, partly from a more strictly clinical reason, microscopic examinations for intestinal infections received a stupendous impetus and an extensive literature has resulted.

Some of the results brought out by these studies are distinctly startling and it is surely incumbent upon public health officers to study them and to give to them a safe public health interpretation.

In the United States, our very eminent protozoologist, Professor Kofoed, of the University of California and of the California State Board of Health, has been especially active in calling attention to the subject. For instance, in various publications he brings out the point that of 2300 returned troops subjected to a single examination at New York, 12.8% were found to be carriers of the protozoon of amoebic dysentery. As a single examination uncovers only about one-third to one-half of the actual cases uncovered by a six-specimen examination, the conclusion lies near that 24 to 36% of these men were carriers of this infection. Even more startling is Kofoed's finding of 67.7% infection among 91 returned soldiers examined in California. With these startling results it is little wonder that he and others called upon the United States Public Health Service to look into this subject and to be prepared to handle the situation. Kofoed states: "If 12.8% of our approximately 3,000,000 overseas men became infected, there would be 384,000 such carriers or 768,000 if twice this percentage are infected," and he says further: "It is also eminently desirable that the United States Public Health Service, the Red Cross, and other social service agencies co-operate to detect and free, as far as feasible, our returned soldiers from the incubus of this infection in a thorough and effective manner." Kofoed's warning has been taken up by able speakers and we now find that a claim is advanced by some to the effect that in justice to public and to patient, the microscopic examination of the feces should be introduced as a routine measure both in hospital and in private practice.

The Public Health Service was by no means blind to the theoretical possibilities connected with the war, and as early as 1914 the subject of

amoebic dysentery was discussed in this connection. But pressure of other duties, a restricted personnel, and a limited appropriation combined to make it impossible to pay especial attention to amoebic dysentery from a laboratory point of view.

As a result of Kofoed's reports, money was squeezed out, and time was found, to conduct a survey to establish independent and comparative findings, on which to base a policy. These extra examinations were not because I questioned Kofoed's findings, but because I was not entirely convinced that we were justified in going to Congress for the many millions of dollars of appropriation that would be involved in the proposed campaign unless this request for public funds were backed up by ample statistics based upon a more general cross section of the country than was represented by the examinations made at New York and at Berkeley.

One of Kofoed's former assistants, Doctor W. C. Boeck, was engaged to have immediate supervision of the microscopists. The examinations are now completed and tabulated and give us, I believe, a fair basis for deductions which are to be compared with nation-wide clinical experience.

A letter of inquiry, asking whether any increase in amoebic dysentery has been observed, was sent to 607 hospitals and to 115 medical schools; replies have been received from 468 hospitals and from 71 medical schools, representing every state of the Union except 4; only negative replies (190 in number) have been received from 28 states; only negative and indefinite replies have been received from 3 states; thus in at least 31 states, clinical amoebic dysentery has not increased since the Armistice to an extent that it attracted the attention of hospitals and medical schools. From 13 additional states, there have been 24 affirmative, 8 indefinite, and 174 negative replies. Thus out of 206 replies from 13 states, 24 hospitals or medical schools, or 11.7%, report an increase in amoebic dysentery since the Armistice, but it may be remarked that the statistics are exceedingly limited and usually very indefinite; and out of a total of 532 replies, for 44 states, 24 answers or 4.5% report an increase but not in a manner as to give rise to serious concern.

Turning now to our examination of 13,043 specimens from 8,029 persons, in 48 institutions, located in 22 states and the District of Columbia, the findings may be summarized as follows:

Of these 8,029 persons, 44% (3,533 persons) showed either protozoan or worm infection of one kind or another; 39.9% (3,208 persons) showed protozoa; 9.6% (775) showed worms. Thus, intestinal protozoa are exceedingly prevalent, and had we included an examination of the mouth, doubtless 100% of the persons would have shown some protozoan infection. There were 333 persons (4.1%) who showed infection with *Endamoeba histolytica*, the parasite of

amoebic dysentery and these persons were scattered North, East, South, and West, as shown by the map; in fact, every state which sent in a fair number of specimens showed the presence of the protozoon of amoebic dysentery.

Of 196 immigrants at Ellis Island, a single examination uncovered 8.6% (17 cases) as infected; this indicates an infection of 25%.

Of 329 American boys and girls in a training school in the District of Columbia, an average of 5.2 examinations per case uncovered 17.3% (57 cases) as infected.

Of 1,547 civilians (with no military history), 8.3% (129 cases) were uncovered as a result of 3.1 examinations per case; this indicates that probably 13 to 17% were infected.

Of 83 American boys and girls in a second training school in the District of Columbia, an average of 5.5 examinations per case uncovered ca. 12% (10 cases) as infected.

Of 2,584 soldiers who did not go to Europe, an average of 1.3 examinations uncovered 3.5% (93 cases) as infected; this indicates that probably 8 to 9% were infected.

Of 3,536 soldiers who returned from Europe, an average of 1.1 examinations per case uncovered 2.8% (100 cases) as infected; this indicates that probably 7.8 to 9% were infected.

Of 362 persons of unknown military history, 1.5 examinations per case uncovered 3% (11 cases) as infected; this indicates that probably 7 to 9% were infected.

The conclusion would therefore seem justified that on an average the soldiers who served in Europe were not infected with amoebic dysentery any more than are certain other elements of our population, namely, the soldiers who saw only home service, certain groups of civilians, and certain training schools. Accordingly, even admitting that segregation in institutions tends to increase infection with intestinal protozoa (as for instance by infected cooks, waiters, etc.), the segregated troops might have obtained some of their infection in this way, and the evidence is not clear that their service in Europe greatly increased their infection, it is not clear that the returned soldiers have materially complicated the situation in this country as respects amoebic dysentery and it is not evident that we would be justified in going to the public expense involved in trying to search out and treat the numerous carriers of amoebic dysentery presented by the veterans of the late war; the microscopic work alone would cost over \$5,000,000, and the other expenses for hospitalization, etc., would run the cost up to over \$25,000,000.

So far as the rates of infection are concerned, it is safe to concede the point that these are higher than were preconceived before the war, but so far as the significance of these rates are concerned, it seems to me that we must revise former conceptions and must conclude that the

carrier of amoebic dysentery in this country is not such a menace to his neighbors as many of us have heretofore almost taken for granted. Even accepting as correct the very striking estimate that a carrier may discharge 50,000,000 cysts of the dysentery amoeba in a single stool, it is a satisfaction to recall that the chances are infinitesimally small that the cysts discharged by our urban population into the sewers will ever return to man; most cysts discharged into privies will die, but it must be conceded and borne in mind that the fly which breeds or feeds in the privy is a potential mechanical vector of the infection.

The intensive studies on intestinal protozoa, studies conducted during and since the World War, appear to me to bring out two practical facts very clearly, namely,

First.—At least in the temperate climates, the intestinal protozoa of man are by no means of so much clinical importance as has been feared or even assumed. The average case of infection is an interesting demonstration in zoology but from a clinical point of view it is usually of such slight importance that it can be ignored, and I can not concur with the view often expressed that a routine examination for intestinal protozoa and worms is called for in every case of disease; on the contrary, it is only in tropical and subtropical localities that this expense can be justified as a matter of administration; in northern localities, this examination should in general depend on symptoms, namely, it should be made in all unexplained cases of anemia, of amenorrhea, and of intestinal troubles.

Second.—At least in temperate climates, *Endamoeba histolytica*, the parasite of amoebic dysentery, is not usually a serious parasite, and its presence in healthy carriers is common. This is not to be interpreted as meaning that it is not a serious menace in the tropics and subtropics. Probably no person of a medical turn of mind who has seen extensive professional service in our Southern States or in the tropics would question the seriousness of amoebic dysentery; but even admitting this, we must conclude that the presence of the cysts, without symptoms of disease, is a far less serious matter practically than we have been accustomed to believe.

In this connection, let it be recalled that there are several other species of amoebae (*Endamoeba coli*, *Endolimax nana*, *Endol. williamsi*, *Dientamoeba fragilis*) which live in the human intestine but it is the species *Endamoeba histolytica* which is of clinical importance. The other species all have their public health significance as proof of unconscious coprophagia and must of course be held in mind in differential diagnosis, but evidence is lacking or unsatisfactory which seems to link them up with *E. histolytica* in clinical importance.

RELATIVE FERTILITY.*

SMALL DECREASES IN THE FERTILITY OF TWO INDIVIDUALS MAY RESULT IN A STERILE MATING.

BY EDWARD REYNOLDS, M.D., BOSTON,
AND
DONALD MACOMBER, M.D., BOSTON.

IN choosing this title, "Relative Fertility," we have advisedly avoided the term "Sterility."

We are not here considering actual sterility due to anatomic or pathologic causes. Every text-book of gynecology and genito-urinary diseases gives a list of these conditions. They are real and must be dealt with if found, but we do not believe that most sterile matings are due to pathologic or anatomic causes.

It is well known to breeders and others interested in the subject that individuals vary in fertility as they vary, for instance, in coat color or any other characteristic. Certain species are more fertile than closely related species existing under similar conditions. In a very general way we may speak of fertility as being affected by certain external conditions; for instance, it is well known that climate has such an effect. Races which live in the northern climate mature later and have fewer children than races living in the tropics. Diet is another factor which is known to affect fertility. A generous diet, ample in all respects, tends to produce high fertility, whereas if the diet is deficient in certain factors great infertility may be produced. The importance of certain definite elements in diet has been shown by experiments which we have carried on with rats¹ and we shall quote our results in somewhat greater detail a little later. Exercise, or rather the lack of it, has a marked effect. This is exemplified by the lowered fertility of animals kept in close confinement.

The work of King of Philadelphia² with rats and the work of various others has shown that inbreeding also very materially decreases fertility, although a point is soon reached where further decrease is not shown.

In addition to these very general factors which affect whole races, there are other factors which affect individuals. That rather elusive and undefinable state of being which we call general condition is probably the most important single factor which affects the fertility of an individual. Fertility may be very markedly lowered in the presence of some toxæmia whether of intestinal or focal origin. Nervous irritability, however produced, has an adverse influence on fertility and may even lower it to a point from which no recovery is possible. Functional disturbances of the genital organs often cause lowered fertility.

To return to the question of diet, let us detail in brief the result of a long series of experiments which we have carried on during the past year and more¹. We took a race of white rats which had been inbred by Dr. King, brother

and sister matings for thirty-three or thirty-four generations. Dr. King has reported to us her statistics on the fertility of selected individuals as being about 80 per cent. In our experiments, however, we used all the rats produced without selection. We found that the fertility of these rats was about 65 per cent., that is, in about 65 out of every 100 matings young were produced. A very interesting observation was made at the very start of our experiments, and as this led to the formulation of what we may call our theory of fertility it is necessary to explain it at some length. This fact was that, although only 65 out of every 100 matings were productive of young, yet on persistent re-mating every individual proved to be fertile with some other partner, even though it might have had as many as 4, 5 or even 6 unproductive matings previous to that. Every individual, therefore, was fertile, but the fertility of some individuals was vastly greater than that of others. It proved to be possible by checking up these re-matings, especially when they included matings with animals of known fertility, to calculate an index of the fertility of each individual. These results varied from .9 to .36 and averaged about .8 for all the rats concerned.

If in order to explain these results we make certain assumptions calculate from them the fertilities which should theoretically be produced, and on turning to the actual results of the breeding experiments, find that the same, or closely similar, percentages were in fact obtained, we may fairly conclude that the assumptions are sustained, in so far at least as the small numbers used warrant any conclusion.

We will assume then that the fertility of a mating may be fairly expressed as the product of the individual fertilities of the individuals concerned, and in written form by the formula.

The fertility of the male \times the fertility of the female = the fertility of the mating or, for brevity, $m \times f = M$.

We will assume that when individuals of the same parentage have been reared under the same life conditions and subjected to the same change in those conditions, their fertilities will be affected in substantially similar degree whether the individual is male or female. Then if in a given class we make 10 matings, of which 5 are fertile, the average mating fertility of this class would be .50 and the formula would be $m \times f = .50$, but if in this formula both individuals are of equal fertility it follows that the fertility of either individual is equal to the square root of .50. The square root of .50 is approximately .7 ($.7 \times .7 = .49$); hence if our assumptions are correct the formula for a class in which 10 matings give 5 fertilities would be $.7 \times .7 = .5$. If we now apply these formulæ to the 23 matings of Dr. King's rats on our stock diet we obtain the following results. There were 31 individuals involved in these 23 matings. In the case of 22 individuals the first

*Read at the Newton Medical Club, Dec. 12, 1921.

mating resulted in prompt reproduction. We may safely conclude that these individuals were of the average mating fertility of King's strain which she gives as .8 (the square root of .8 is .9, $.9 \times .9 = .81$) which may then be taken as the individual fertility of these 22 rats. The other 9 individuals all eventually reproduced, but in their case the number of matings required before a result was obtained varied from 2 to 7. Estimating their individual fertilities by the same method, i.e., by the percentage of mating fertility in the whole group of matings in which the individual was concerned, and taking the square root of the mating fertility as the fertility of the individual, adding the individual fertilities of the whole class and dividing by 31 we got an average individual fertility of .82 for the whole group of 31 rats. If these assumptions are correct, or nearly so, this figure (.82) should approximate that obtained by taking the square root of .65 which was our observed index of mating fertility for these rats. This square root is .81, and the comparison is close enough to warrant the assumption.

When we calculate equations for all the matings concerned and arranged these in series, we found that there was a level in this series below which all matings were unproductive but above which young might invariably be expected. This level we called "The

TABLE 1. SCHEMATIC CHART OF FERTILITY.*

Individual Fertility	Mating Fertility, per Cent.
1.0×1.0	1.00 or 100
0.9×0.9	0.81 or 81
0.8×0.8	0.64 or 64
0.7×0.7	0.49 or 49
-----	-----
0.6×0.6	0.36 or 36
0.5×0.5	0.25 or 25
0.4×0.4	0.16 or 16
0.3×0.3	0.09 or 9
0.2×0.2	0.04 or 4
0.1×0.1	0.01 or 1

* The figures in this table vary from those actually obtained from the matings only in being restricted to even tenths for the sake of clearness. The establishment of 45 per cent. as the threshold for reproduction must, of course, be regarded merely as an approximation until larger numbers have been employed.

Threshold for Reproduction." (See Table 1.) The threshold was not only approximately accurate when the rats used were of equally decreased fertility, but also held true when a rat of lowered fertility was mated to one of higher or full fertility (e.g., $1.0 \times 0.5 = 0.50 =$ reproduction, $0.8 \times 0.4 = 0.32 =$ a sterile mating, etc.).

Repeated experiments showed, moreover, that if rats whose individual fertility had been decreased to, for instance, 0.6 were mated, their mating was sterile and remained sterile so long as these rats were kept together; but that if these rats with individual fertilities of 0.6 were each remated with highly fertile rats from Dr. Castle's strain the matings would both prove fertile. This observation is not a chance observation, but was proved in our experiments in 37 instances, and is, we believe, capable of explaining many problems which arise in infertilities of the human race.

We have gone somewhat fully into these theoretical considerations because they help us to understand what takes place when fertility is lowered. We have told you the various natural conditions which may bring this about. It remains to give you the results of our laboratory experiments in which the result was produced by alteration of diet¹. It has long been known that poor feeding of laboratory stock will affect its breeding qualities. McCollum³ of Johns Hopkins and Osborne and Mendel⁴ at New Haven showed conclusively that deficiencies in certain important elements would lower fertility. Our experiments were in the nature of a repetition of these giving, however, particular attention to breeding records. We submitted our rats to four deficient diets. These diets were carefully calculated with advice of Dr. McCollum to reduce fertility without affecting health. The first was low in the Fat Soluble Vitamine, and, although it definitely affected growing individuals which were subjected to it, the results were not as universal nor as striking as those on a diet made low in calcium, or on another diet with a low percentage of protein. As may

TABLE 2. RESULTS OF MATINGS ON VARIOUS DIETS (KING X KING RATS).*

Diets	Number of Matings	Number of Positive Matings	Percentage of Mating Fertility	Percentage of Individual Fertility
Stock diet.....	23	15	0.65	0.81
Low fat soluble vitamin diet				
Proved.....	8	4	0.50	0.70
Unproved.....	13	4	0.31	0.55
Low calcium diet				
Proved.....	0	0		
Unproved.....	7	1	0.14	0.37
Low protein diet				
Proved.....	0	0		
Unproved.....	5	0		
Double deficiency diet (low in calcium and protela)				
Proved.....	3	0		
Unproved.....	5	0		

* This table shows the result of matings in which both partners were King rats and both were on the indicated diet.

be seen in table No. 2, rats which had previously been proved to be fertile showed on the Fat Soluble Vitamine diet a percentage of .50 as compared with .65 for the normal. Growing animals on this diet were still further reduced in fertility to .31. On the low calcium diet the percentage was reduced to .14, while on the low

TABLE 3. RESULTS OF REMATINGS ON VARIOUS DIETS (KING X CASTLE RATS).*

Diets	Number of Matings	Number of Positive Matings	Percentage of Mating Fertility	Percentage of Individual Fertility
Stock diet.....	10	7	0.70	0.70
Low fat soluble vitamin diet				
Proved.....	0	0		
Unproved.....	20	9	0.45	0.45
Low calcium diet				
Proved.....	0	0		
Unproved.....	19	6	0.30	0.30
Low protein diet				
Proved.....	0	0		
Unproved.....	12	6	0.50	0.50
Double deficiency diet (low in calcium and protela)				
Proved.....	0	0		
Unproved.....	0	0	0	0

* This table gives the results of remating rats from the negative matings of Table 2 with Castle rats of known fertility. Since such Castle rats are of practically 100 per cent. fertility the index of average individual fertility of their King rat partners is the same as the index of mating fertility. It will be seen that the individual fertilities of rats on the deficiency diets are so low as to have insured sterile matings with partners of the same grade (Table 1).

protein diet none of the five matings produced young. We also submitted them to a fourth diet which was deficient both in calcium and in protein, and the results on this diet were even more striking as the deficiency in this case was sufficient to produce visible ill health.

All the animals whose matings were infertile were re-mated while still on the diets with highly fertile partners, whose fertility had been thoroughly tested previous to these experiments. (See Table 3.) Nine out of 20 of these sterile rats on the low Fat Soluble Vitamine diet promptly proved to be fertile. In the same way 6 out of 19 on the low calcium, and 6 out of 12 on the low protein diet produced young. Now these facts are very difficult to explain, if it is assumed that the rats on diet which do not have young are sterile, for by merely changing partners we find that in matter of fact they are fertile. This anomaly is, however, very easily explained by assuming that the diet has merely lowered the fertility of the individual concerned. For instance, on the low Fat Soluble Vitamine diet the percentage of mating fertility was .31. Remembering our formula that $m \times f$ is = to the mating fertility, which in this case was .31, and that males and females in this experiment are of equal fertility, the percentage of each individual becomes the square root of .31 or .55, but this, of course, represents only an average. Some individuals would probably be as high as .7 or .8, others as low as .3 or .4. When the more fertile individuals happen to be mated together young would result, e.g., $.7 \times .7 = .49$ which a reference to Table 1 will show to be above the threshold value, whereas $.4 \times .4$ will be far below that line, and no young can be expected. In general, those individuals whose fertility is below the average of .55 will when mated with rats of decreased fertility prove unproductive, but if as shown in Table 3 they are re-mated with 100 per cent. fertile individuals a certain number, in this case 9 out of 20, will produce young.

Lowered fertility is something which cannot be diagnosed alone from history or general physical examination or even from the most comprehensive local examinations, but which is capable of being estimated for the individual case by combining all methods. The various factors which we have learned to associate with this condition do not appear to effect all individuals in the same way. Many individuals preserve full fertility in spite of poor general condition resulting from overwork, nervous fatigue, errors in diet or even actual disease, but there are many others whose fertility is the first thing to suffer from these same causes. It should be noted that a similar individual variability was observed with our rats. We are not able to give any adequate explanation for this. One fact has, however, assumed importance in a broad view of a good many such relatively infertile individuals; and that is that a great

many of these individuals show the stigmata of poor development.

These stigmata are more capable of being recognized in the female, although some of them obviously apply to both sexes. In the first place, the weight is as a rule far below the average for a given height and age. The patients stand badly and usually assume the posture associated with ptosis—partly as a result of ptosis and partly from the under-development they are apt to complain of indigestion, headaches, chronic fatigue, constipation and dysmenorrhœa. Locally one finds the anteverted cervix, pinhole os and small fundus so common in these cases. Under the microscope the cervical secretion is seen to contain an excess of mucus in which are embedded an abnormally large number of leucocytes. Sometimes the number of leucocytes is large enough to render the secretion muco-purulent. It is not unusual to find the ovaries enlarged and containing many small cysts which represent Graafian follicles that instead of maturing have retrogressed with degeneration of the ovum. Such a condition probably occurs normally to a mature Graafian follicle once in a while and is an accompaniment of the normal atresia of the many ova which never reach maturity; but when all or many of the follicles undergo this degenerative change the ovary becomes tense and in time the capsule becomes so thickened that no ova can be released. Occasionally also we find the ovaries containing corpora lutea which instead of undergoing the normal involution persist and not infrequently become cystic. The persistence of these corpora is often associated with changes in the menstrual cycle and almost invariably interferes with ovulation.

In the male the general considerations are the same as with the female. Here again certain local findings are often associated with under-development. They are most clearly demonstrable by examination of the semen. In the first place, the number and vitality of the spermatozoa may be greatly diminished. This failure of spermatogenesis is usually found where the testicles are small and soft. It is not a diseased condition and where of not too marked a degree is capable of being corrected by stimulative treatment. Sometimes spermatogenesis is normal, but the secretion from the prostate is sufficiently altered to affect vitality of the spermatozoa. In this case the semen often contains a high percentage of stringy mucus, and there are present large numbers of the so-called prostatic concretions. The spermatozoa are seen to become entangled in the mucus and, if the process is sufficiently extensive, to be killed outright. The prostatic condition which gives rise to this altered secretion has such slight symptomatology that it would be often unrecognized were it not that the microscope calls our attention to it. Such a prostate is not as a rule enlarged, but is much more irritable than normal,

and is felt to contract when touched by the examining finger. If a specimen of urine is passed after such an examination it will be seen to contain small, translucent shreds. Under the microscope these shreds are found to consist of mucus in which many leucocytes are entangled. The great similarity between the altered secretions of the cervix and prostate is worthy of mention.

In addition to the functional disturbances in the male and female elements, it is possible, perhaps because of them, to have functional disturbances of the fertilized ovum⁵. This is a subject which has not been as yet thoroughly investigated, but for which there is accumulating a great deal of clinical evidence. It might account for many cases of habitual miscarriage in which syphilis is known to play no part. It might also be a determining factor in certain cases of maldevelopment. As yet we can make no definite statements in regard to it.

As illustrative of these various principles, we wish to cite a few typical case histories. As is so common in dealing with cases of any particular classification in actual practice, it is often difficult to draw hard-and-fast lines and to say, for instance, that a given sterile mating is caused by this or that single factor.

To cite a simple case first in which the cause of the lowered fertility could be definitely discovered and where its removal was followed by prompt pregnancy.

The couple had been married for four years. A direct examination of the male proved him to be highly fertile. The woman, however, had a very sharp antelexion of the cervix and the cervical secretion, which was muco-purulent, entangled and killed all spermatozoa. The rest of the examination was entirely negative. She was operated on, the antelexion was corrected and the uterus and cervix thoroughly curetted. After operation it was necessary to give her repeated treatment of the cervix before the character of the secretions was finally returned to normal. Four months after operation she became pregnant. We consider this case to be extremely instructive because it illustrates the fact that free drainage followed by persistent after-treatment will clean up even a very bad muco-purulent secretion.

Few cases, however, are as simple as this one, and in the next the character of the secretions forms only a secondary part in the whole picture.

These patients had been married five years. There had been a miscarriage at six or seven weeks soon after marriage but nothing since. Here again the male proved to be fertile. In this case also there was an extreme antelexion of the cervix with altered secretions. The uterus was retroverted, and both ovaries were felt to be enlarged. In the post-coital examination the spermatozoa were entangled and killed in the cervical secretion. At operation the cervix was treated as in the previous case. An abdominal

incision was then made and the uterus suspended. Adhesions about both ovaries were broken up and a corpus luteum cyst in the left ovary evacuated. It was evident that the cervical condition was only one element in this case, and that, though the cervical plastics were essential they would have yielded no result if performed without the abdominal. This patient was also ten pounds under weight. She made a normal convalescence and gained weight and strength on the diet prescribed for her. Without the necessity of further local treatment she became pregnant six months after operation. We feel that the important element in this was the corpus luteum cyst in the ovary.

Not infrequently we find trouble on both sides. As a rule, these cases are not as favorable as those in which there is trouble of even quite a marked degree on one side alone, but a fair proportion of such cases is successfully treated. This is illustrated by the following case:

The patients had been married for five years without a pregnancy. On examination the woman was generally under-developed. She stood badly, and she was about thirty pounds under weight. Locally there was a marked antelexion with pinhole os. The man had a large double varicocele, but was otherwise in good general condition. A direct examination of his semen, however, showed him to have a marked reduction in the number of spermatozoa and the motility was poor. We advised him to have his varicocele operated on. This he did, and there was such a marked improvement in the character of the direct specimen that we advised his wife to have the cervical condition corrected by an operation similar to that noted in the first case. Four months after operation she came in for examination and proved to be pregnant. She is now awaiting her confinement.

Naturally there are many cases in which the outcome is not as favorable as those we have reported. This is particularly true of the cases where there has been a lowered fertility of either partner of long duration.

A couple first consulted us early in 1918. They had been married for five years, and investigation showed this to be a case of lowered male fertility. Previous to marriage the husband had been in hard training for some seven years. After marriage, however, he went into an office and gave up exercise altogether. No pregnancy resulted after two years. At this time he again took up hard training, and his wife promptly conceived. Then came the war with still harder and more confining office work together with a responsibility far beyond his years. His general physical appearance was excellent, but a direct examination of his semen showed very few spermatozoa present and the motion of these not over good. We advised him to get as much hard exercise in the outdoor air as was consistent with keeping up his work, to

take a stimulative diet rich in protein food of animal origin, such as meat, eggs, fish, cheese, etc., and plenty of milk and butter, together with the usual amount of vegetables, fruits and starches. Such a diet is rich in the Vitamines, and is known to have a definite stimulative action on spermatogenesis. In addition, we put him on Extract of the Anterior Lobe of the Pituitary Gland. His semen has made a very considerable improvement to date, but so far there has been no pregnancy. From a consideration of the circumstances under which the only child was conceived, it has seemed to us most probable that our failure in this case is due primarily to the fact that the patient has been unable to carry out an adequate regimen as to amount of work and exercise with freedom from business worries.

In the nature of the case it is difficult to find human histories which illustrate the effect of deficient diet as seen in the rats. We believe that diet plays a very important part in the treatment of most cases. It is certainly true that an abundance of the important elements tends to increase fertility. This was clearly shown in the preceding case where marked improvement in the quality of the spermatozoa has followed a stimulative diet. It is also probably equally true that deficiency lowers fertility. It is rare, however, that deficiency in a single element can be found in the patients whom we see. It is more common perhaps to get statistical evidence of this effect where there have been famines or other disturbances in the normal food supply of whole countries. This is well illustrated by the lowering in the birth rate which has been reported in Austria and other European countries since the war. We have, however, one case which illustrates the effect of a calcium deficiency.

The husband was normal in every way and thoroughly fertile. The wife was a large well nourished woman in ordinarily good health, but reported herself as lacking in energy and constantly tired, perhaps in a condition quite comparable to that of the single deficiency rats. They had been married seven years. Ten months after marriage she was delivered of a full term child which was alive at the beginning of labor, but died during an operative extraction. During the succeeding six years she had five pregnancies which resulted in five early miscarriages. These people were in the habit of maintaining a very ample table, and a deficiency in diet seemed absurd; but since an exhaustive examination failed to reveal any other cause for the habit of abortion, an inquiry was instituted. It was found that during her first pregnancy (which went to term) she had eaten everything, but that finding herself growing stout soon after the birth of the child she had then begun to restrict her diet. On analysis it proved that she had been living for the six years during which she had miscarried repeatedly, on a diet which was very deficient in calcium. She was at once

put on large doses of calcium, her diet was rearranged to include foods rich in calcium and after a reasonable interval the medicinal calcium was discontinued. She went into her seventh pregnancy shortly afterwards and without any other treatment was delivered at term of a healthy child.

From a consideration of these cases it is very evident that the question of treatment is an involved and intricate one depending entirely as it does on the specific cause or causes of the infertility and it is evident that treatment must be preceded by an accurate differential diagnosis of the cause or causes. Where it is a question of lowered fertility from any cause there are certain general factors which should receive attention, and these remarks apply equally whether it is the man or woman who is found to be at fault. In the first place the general condition must be brought to the point of maximum efficiency and here an intimate study of the life of the patient is a pre-requisite. A stimulating diet which will include an abundance of protein food of animal origin and an excess of the various vitamins and of calcium is prescribed in every case. In order that this diet may be digested and assimilated a large amount of outdoor exercise is necessary. Business cares and worries should be eliminated. If the individual is under weight or suffers from ptosis these things must be remedied.

Local conditions in the male which are susceptible of treatment must be attended to by a trained genito-urinary surgeon. Where no abnormalities exist and the defect seems to be due to a partial failure of spermatogenesis it is often possible to do much by using certain of the glandular extracts in addition to the diet and general care.

In the female the local defect is often mechanical and the result of poor development. Such conditions demand mechanical treatment and this is furnished by the various plastic operations on the cervix and ovaries. Where endocervicitis has existed for some time it is usually necessary to follow up the operation by detailed and often prolonged office treatment of this condition. As in the male, occasionally cases are found where the defect is due to under activity of the gonads. In such cases appropriate organo-therapy is apt to be successful.

In conclusion let us emphasize the importance of distinguishing between lowered fertility on the one hand and actual sterility on the other. That this distinction is of more than academic importance we feel has been amply demonstrated.

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PATHOLOGY OF TUBERCULOSIS.

BY LAWRENCE WELD SMITH, M.D.,

*Instructor in Pathology, Harvard Medical School,
Boston, Mass.**Introductory.*

Mr. Chairman, Members of the Society, Ladies and Gentlemen:—It is my purpose this morning to discuss with you the more important tuberculous lesions from a pathological point of view. In the limited time at my disposal, I cannot go into very much detail, and shall confine myself almost entirely to the pathological conditions associated with tuberculous disease of the lungs. These pathological processes are illustrated in a series of gross and microscopic specimens which will be passed about, and can be examined more leisurely at the close of the morning.

History.

In any discussion of the pathology of tuberculosis, the evolutionary history of the disease is obviously of primary interest and importance. Even in the time of Hippocrates and Celsus, the anatomical lesions of pulmonary tuberculosis were recognized and included under the term "phthisis." From that time until the latter part of the eighteenth century, little was contributed to the morbid anatomy of the disease.

At that time the name of Mathew Baillie (1760–1823) stands out as of particular note. He was the first to describe the anatomical tubercle. It is a tribute to his accuracy of observation that his original description still stands the test of time.

Next, C. L. Bayle (1764–1826), a French physician, contributed somewhat further to the description of tuberculosis. In 1811, he published a small volume describing five of its principal forms. He was the first to describe the so-called "granular tuberculosis" which, in the light of later investigation, corresponds to the acute miliary form of the disease.

Following these men, Laennec (1781–1826) is the next great name to be associated with the development of our knowledge of tuberculosis. With his invention of the stethoscope, the clinical relationship to the pathology was established. He was the first to suspect the unity of the widespread difference in the anatomical lesions, and their infectious character.

In Rokitsky (1804–1880), another conception of its unity was advanced—that of its humoral nature—with the production from the blood of a mother liquor termed "blastema," and the development of a variety of lesions due to variations in the tissue reactions to this substance.

With Virchow (1821–1902), the theory of the duality of tuberculosis was developed, a separation of the lesions of the lymphoid tissue

from those of the lung, terming the former scrofula, and the latter catarrhal pneumonia. For many years this dual conception of the nature of tuberculous lesions was held.

In the meantime experimental work was advancing, and we find one of the most interesting periods in the history of tuberculosis. The names of Villemin (1865) and Cohnheim (1838–1890) are perhaps the most familiar. They established indubitably the infectious nature of the condition by the injection of tuberculous material into experimental animals, with the reproduction of the disease in them.

It only remained for Robert Koch, in 1882, to report the discovery of the organism producing tuberculosis, to definitely establish the unity of the great variation in lesions caused by the tubercle bacillus, and to stimulate a widespread study of their histological pathology.

Following Koch, probably the most important work is that of Theobald Smith, who has contributed the greater part of our information concerning the differentiation of bovine from human tuberculosis.

Etiology.

The offending organism is so well known now, that only a very hasty summary of the more important morphological and cultural characteristics seems indicated. Suffice it to say, that there are at least four recognized types of tubercle bacilli,—differing chiefly in their cultural properties,—the human, bovine, avian, and piscene, of which the first two are of pathological significance in the production of tuberculosis in man. Of these, the human type is by far the most common, being the responsible organism in over 90 per cent. of cases. This bacillus is a slender rod, 2–4 micra in length, and 0.2–0.5 in width. It may be straight or slightly curved. It stains with anilin dyes with some difficulty, due to a waxy capsule, but is "acid-fast" (resistant to decolorizing by acid alcohol). It stains irregularly with beading and vacuoles. It is a relatively difficult organism to cultivate—is strictly aerobic, and grows best on a medium containing glycerin. The bovine type occurs as a somewhat thicker, shorter rod, with the same staining reactions. It is grown with even more difficulty than the human type.

Pathogenesis.

The pathogenesis of tuberculosis is a complex problem about which still rages a very considerable storm. The scope of this paper does not warrant entering into any discussion of the problem. I merely venture to bring forward a few of the results which careful students have gradually collected in the past forty years.

First, there is the question of the mode of infection. Nearly all workers are agreed now that tuberculosis is not transmitted to the off-

spring before birth. In other words, that with the exception of a few rare cases of placental tuberculosis, tuberculosis is not, strictly speaking, ever congenital in origin.

The relative importance of the aerogenous and enterogenous routes has long been one of the most bitterly fought problems. Certain it is, that both portals of entry may play a part, and that neither method of inoculation is always obvious, as, particularly, in bone tuberculosis. The rôle of the hilus lymph-nodes is one of the *bêtes noires* in settling the dispute. Whether tuberculosis of the bronchial lymph-nodes is primary, or whether it is secondary to pulmonary lesions, has not been accepted completely by either side. Autopsy statistics from Hedren, Ghon, and others, suggest very strongly a pulmonary focus of longer duration than the lymph-node lesions.

Another problem which the pathogenesis raises is that of the age incidence of tuberculosis. Metcalf reports figures from many observers which seem to prove that at birth the cutaneous reaction of Von Pirquet is negative; at two years, there is a 10 per cent. incidence of positive reactions, and at fifteen years, less than 10 per cent. are negative. In other words, by puberty, nine out of ten children have become infected by the tubercle bacillus. These figures are confirmed independently by Naegli and Reinhart, who quote an incidence of from 93 to 96 per cent. of tuberculous lesions in their adult series of routine hospital autopsies. In addition, the statistics of Hedren, who found 199 tuberculous cases in 690 routine children's autopsies; of Ghon, who found 184 cases out of 644 children's autopsies; of Wollstein, with 178 cases of tuberculosis in 1320 autopsies at the Babies' Hospital; and of the Infants' Hospital in Boston, where 40 tuberculous cases have occurred in the past 200 autopsies—all show the high incidence of infection in early life.

Gradually, however, the view that adult tuberculosis is the lighting up of a focus acquired in infancy or childhood, seems to be becoming more and more generally accepted, and the theory of reinfection, or primary infection, in adult life, is falling into greater disrepute.

Whether the theory of aerogenous or enterogenous inoculation is the correct solution; whether the organism penetrates the alveolar epithelium or the intestinal mucosa without stimulating any immediate reaction, and glandular tuberculosis is primary; whether infection may be by the tonsillar ring or by carious teeth; whether the organism is of the bovine or of the human type—all these theories, after all, make very little difference in the end-result; in the pathological lesions which we recognize by clinical signs and symptoms, and by gross and microscopic characteristics. And so we come

to a discussion of these lesions as we find them in the human body.

Morbid Anatomy.

In a discussion of the morbid anatomy of tuberculosis, we must first recognize the miliary tubercle as the pathological unit and the variegated appearance of tuberculous lesions in the body as being due to the same causative agent, affected variously by the anatomical structure of the individual organ involved.

The reaction of the individual to the tubercle bacillus varies so tremendously that it is difficult to describe the lesions in any satisfactory way. The reaction may be entirely proliferative, it may be entirely inflammatory, or it may be, as it most commonly is, a combination of the two. Again, in bone tuberculosis, the lesion may be, at first, largely a destructive one before proliferative changes begin to occur. In the simple proliferative reaction, we see perhaps the best example in the lymphoid tissues. Of the inflammatory type of reaction, the pneumonic exudate is perhaps the most striking.

The miliary tubercle itself—so called originally from its resemblance to a millet-seed—is recognized as a proliferative reaction attempting to remove a foreign body. The tubercle bacillus, with its dense, waxy capsule, is intensely resistant to the ordinary phagocytic activities of polymorphonuclear leucocytes, and attracts the large mononuclear cells whose origin is still the object of much experimental controversy. These cells are certainly, in part, derived from the vascular endothelium of the immediate vicinity and migrate to the affected area, as shown by Foot, and others, with vital stains. The term "epithelioid" has been applied to these cells which are probably both of endothelial and fibrous tissue origin, from their similarity in appearance to epithelial cells. They accumulate about the organism in such numbers as to occlude the blood supply to the part. They likewise tend to be arranged radially on their long axes. Certain of them may fuse about the bacilli and form the so-called "giant-cell" which appears as a syncytial mass of cytoplasm containing several oval nuclei tending to be distributed peripherally in the cell, giving it a "horse-shoe" appearance. By proper staining methods, the organisms are sometimes found centrally in such a cell. Accompanying this cellular reaction there is a marked deposit of fibrin throughout the tubercle.

As the area becomes avascularized, a characteristic necrosis of the tissue centrally takes place, termed "caseation." This cheesy-like appearance is due very largely to the fatty substances present in the phagocytic cells and the bacterial capsules.

Next, about this central zone of caseation there occurs a further inflammatory reaction in

which both fibroblasts and mononuclear cells, chiefly of endothelial origin, take part—tending to encapsulate the necrotic area. Lymphocytes and polynuclears wander into this zone in varying numbers, attracted, in part, by the necrotic tissue. They are indicative of the chronic inflammatory character of the lesion.

Thus we have formed a definite unit which, even without the demonstration of the organism, is sufficiently characteristic, microscopically, to be diagnostic of the disease. Its central area of caseation in which a shadowy appearance of the normal fibrous stroma persists for a long time, a zone of proliferating young connective tissue and mononuclear cells arranged typically in radial fashion, usually with one or more "giant-cells," and a varying amount of inflammatory cellular exudate about the periphery, presents a histological picture unlike anything else in pathological histology.

This initial lesion may extend laterally by tubercle bacilli which are carried to the periphery of the lesion by phagocytic cells and start up new areas of caseation which may fuse to form a larger or "conglomerate" tubercle. In its extension, such a lesion may erode a blood vessel, a lymphatic or, in the case of the lung, a bronchiole. Dependent somewhat upon which system becomes involved, a new crop of tubercles starts up where the bacteria lodge.

This factor is of the utmost importance in the distribution of the new lesion; thus, in involvement of a bronchus the result is an inhalation infection and the new tuberculous foci have a relatively peripheral distribution in the lung—in the terminal alveoli. On the other hand, the new tubercles which arise from a blood stream infection tend to be equally distributed through all parts of the lung. In the case of the lymphoid tissue, practically every infection of the lung results in secondary involvement of the hilus lymph-nodes from the anatomical relation which these nodes bear to the normal drainage of the lungs.

Acute Miliary.

And now we come to a pathological classification of the tuberculous lesions of the lung. First of all, there is the acute miliary form. This arises by a general blood stream infection, usually associated with generalized miliary tuberculosis. It is particularly common in infancy and makes up over 90 per cent. of the fatal cases under one year of age. It is an acute disease with no time for the formation of the more chronic lesions. It usually arises from the softening of a tuberculous thrombus, or of rupture of a tuberculous lesion into a blood vessel, or from thoracic duct involvement. In the forty cases cited from the Infants' Hospital, it is interesting to note that all but two cases presented acute miliary lesions. This specimen from a child of three is a very

striking example of miliary tuberculosis (CH A-21-3).

In such cases it is the rule to find miliary lesions scattered through the other organs—thus the liver, the spleen, the kidneys, the lymph-nodes, and the meninges are particularly prone to be involved secondarily, and we see a fulminating type of the disease in which the lesions have not had time to progress beyond the miliary stage.

These miliary lesions present the general histological picture just described. It often happens, however, that the original focus of infection remains a constant source of supply of organisms over a considerable period of time. So it is not infrequent to find miliary lesions in all stages, from the very earliest proliferative reaction of a few endothelial cells to a late lesion which marked caseation and conglomerate tubercle formation. Under the microscope miliary tubercles of all ages can be found with a terminal overwhelming generalized infection in which the organisms are found almost in colony formation centrally in a new acute series of tubercles. The immediate source of infection in this case was the thoracic duct. Whether the primary lesion occurred in the lung or in the hilus lymph-nodes was not determined, as the lung tissue was preserved in gross.

Chronic Tuberculosis.

In the next place, we have chronic tuberculosis of the lungs. In this condition we find a variety of lesions which resolve themselves into three elements on careful histological examination—(1) miliary and conglomerate tubercles; (2) tuberculous pneumonia, and (3) cavitation from softening and abscess formation. Associated with these, we may also find tuberculous thrombi, tuberculous ulceration of the bronchi, and tuberculous lymphangitis.

Probably the best general description of these pathological lesions is found in MacCallum's Textbook of Pathology. I will pass around some of the more striking illustrations from his book. Certain of these gross specimens also are good examples of the various stages, but unfortunately, by preservation, have lost some of their color values. The attached legends are more or less self-explanatory.

Miliary and Conglomerate Tubercles.

In the miliary and conglomerate tubercles found in chronic pulmonary tuberculosis, the most noteworthy point is their distribution. Instead of an equalized distribution, they are found chiefly with a peripheral arrangement. This is due to the fact that the new tubercles as they form, originate in terminal alveoli by inhalation, or in the smaller lymphatics, and are not distributed by the blood stream. Again, as a rule, these lesions show more of a proliferative and inflammatory reaction about them—there is much more fibroblastic activity, much

more evidence of attempted repair. Whether this is due to a variation in the virulence of the organism or to the individual's reaction, is problematical.

Microscopically, one of the most noteworthy features of these chronic miliary and conglomerate tubercles is the extent of the inflammatory reaction about them. The lymphocytes and polymorphonuclear leucocytes are attracted in relatively large numbers, the fibrous tissue cells are engaged in an active proliferative process apparently organizing the fibrin which is usually present in great abundance. Unlike other processes, the repair usually occurs without any evidence of vascular regeneration. The endothelial cells derived from the vessels do not, apparently, make any attempt to form new capillaries, but occlude the vessels, thus preventing further dissemination of the tubercle bacilli. Sometimes the repair is accomplished by fibrous tissue proliferation alone, sometimes by a deposition of calcium in the caseous material, and sometimes actual bone formation may occur by a specialized reaction of the fibroblasts. In the lungs, the repair is most apt to be by the activity of the fibrous tissue cells. In the hilus lymph-nodes, with their loose structure, calcification is more common.

Tuberculous Pneumonia.

The exudative reaction which has been mentioned is not limited to the actual tubercle in the lung, but extends into the alveoli, forming a definite patch of broncho-pneumonia. This is the second important element in the lesions of the tubercle bacillus in chronic pulmonary tuberculosis—tuberculous broncho-pneumonia.

Varying with the number of foci of infection and with the virulence of the organism, the pneumonic exudate may occupy but a few alveoli, or it may involve one or more entire lobes. It is characterized, microscopically, by the presence of rather abundant amounts of fibrin, serum, and large mononuclear cells of phagocytic capacities. Varying numbers of other inflammatory cells—lymphocytes and polynuclear leucocytes—are usually seen. As the process develops, one of two things may occur. First, the alveolar walls may undergo necrosis from an avascularization by compression or occlusion of the capillaries by the endothelial cells. To this condition the term caseous pneumonia is applied when it occurs to any considerable extent. Or second, proliferation of the connective tissue may occur. This grows into the fibrinous exudate from the alveolar wall and organizes this fibrin. In such a process, large areas of lung may be replaced by connective tissue with resulting deformities. To this condition, when at all extensive, the term "fibroid phthisis" is often applied. Certain of these gross specimens illustrate these two conditions very satisfactorily.

Cavity Formation.

As the lesions of tuberculosis progress over many months we get the third characteristic condition occurring—that of cavity formation. A histological study of these lesions brings out certain rather fundamental points. In a loose tissue like the lung, when the conglomerate tubercle formation reaches a certain size, almost invariably softening results from its caseous avascular condition. With this softening, polynuclear leucocytes are attracted by the necrotic tissue, and there is an actual abscess formed. This abscess may rupture into a vessel or a bronchus and cause extensive secondary lesions. Often this abscess formation is hastened by some secondary pyogenic organism—staphylococcus, streptococcus—invading a tubercle.

Dependent upon the number of foci of softening and their approximation to one another, are the size and number of cavities thus formed. They present, grossly, a shaggy, irregularly outlined cavity, usually lined by a fibrinous exudate, and often coursed by trabeculae containing remnants of blood vessels and bronchi. Reparative fibrous tissue proliferation frequently accompanies such cavitation, so that occasionally such a lung may represent actually a less severe clinical picture than a patient whose lung shows a much less extensive process, but whose lesions are of a multiple distribution and progressive in character.

Besides these two forms of pulmonary tuberculosis, there is a third less common lesion occasionally seen. Histologically, this is characterized by a peculiar gelatinous exudate which fills the alveoli. Inflammatory cells are sparsely distributed through such an exudate. It is usually associated with the involvement of one or more lobes, and presents a clinical picture not unlike lobar pneumonia. No very satisfactory explanation of this exudate has been offered.

Pleura.

The lesions of the pleura are most frequently an extension of the inflammatory process in the peripheral portions of the lung tissue, and exhibit essentially the same characteristics. There is, however, a particularly fibrinous exudate deposited on the surface of the pleura which undergoes repair by the ingrowth of new vascular endothelium and fibroblasts.

Bronchial Lymph-nodes.

In discussing pulmonary tuberculosis, the importance of the hilus lymph-nodes must not be overlooked. As we mentioned, in speaking of the pathogenesis of tuberculosis, statistics bring out the relative influence of glandular infection. In Ghon and Hedren's series of children, between 93 and 100 per cent. showed both pulmonary and lymph-node involvement, varying slightly with the age of the children. In the Infants' Hospital series, all of the cases which

involved the lung, showed 100% involvement of the hilus nodes.

The lesions here are apt to be diffuse because of the loose stroma of the glands. In their histology, no inherent differences are noted, however. Repair is very often accomplished by calcification.

Tuberculosis Elsewhere.

I have already exceeded my limited time in this very sketchy account of the pathology of tuberculosis in the lungs. But tuberculosis is by no means limited to the lungs; it is frequently found in almost every organ of the body; it may assume the most bizarre forms and simulate almost any other disease. Most commonly, however, it is found in certain places—the pleural cavity in relation to lesions of the lung—the genito-urinary apparatus, particularly the kidney, ureter, Fallopian tube, endometrium, epididymis and seminal vesicles, the intestinal mucosa, the meninges, the cerebellum, the bones and joints, especially the vertebrae (Pott's Disease) and the hip-joint.

The histology in these cases is essentially the same—an exudative and proliferative reaction to the presence of the tubercle bacillus with the formation of miliary tubercles modified by the architecture of the organ affected. Thus in the cerebellum the solitary tubercle—the end-result of the reaction to a single organism—is seen, and in the colon an extensive ulcerative process is most frequently noted.

Experimental.

In the experimental field much work has been done. One of the greatest points of contention has always been that of the origin of the so-called "epithelioid" cells. Within the past few years the injection of vital dyes and carbon pigment into animals, followed by inoculation with tubercle bacilli, has led various observers to conclude that the vascular endothelium is the important element in the formation of these cells. In addition to the purely morphological studies, the entire field of serology and immunology is being extensively studied. It is, perhaps, along these lines that the solution of therapeutics may be reached. Too much emphasis cannot be placed upon the importance of continuing these intensive studies, as it is only by such work that we may arrive ultimately at the goal.

SERUM TREATMENT OF LOBAR PNEUMONIA.

BY L. W. MCGUIRE, M.D., BOSTON.

THE treatment of Type I lobar pneumonia with Type I anti-pneumococcic serum has proved to be of such definite value that it is desired to enumerate the principal reasons why

favorable results are not always obtained; also to report a series of cases treated with Type I serum.

A large number of physicians are not convinced of the value of the serum treatment of pneumonia. This fact is due to several reasons. (1) They do not employ serum early in the disease; (2) They attempt to treat with serum only what they consider the serious cases; (3) They do not use sufficient serum; (4) They do not type the pneumonia; (5) Some use a so-called "polyvalent serum" and not a specific Type I serum. These factors will now be considered in detail.

I. They do not employ serum early in the disease.

The necessity of using serum early in the disease if the best results are to be obtained has been shown repeatedly in the various groups of cases reported. This was strikingly noted in the series of cases reported from the Pneumonia Service of the Boston City Hospital.¹ They had no mortality in cases treated on the second and third day of the disease. It is particularly dangerous to wait until a patient becomes critically ill and then start serum treatment. The longer the treatment is delayed, the higher will be the mortality.

II. They attempt to treat what they consider only the serious cases.

Physicians who treat only the serious cases of Type I pneumonia with serum cannot hope for success. No physician can tell at what time, a patient only moderately sick with pneumonia, will become critically so. The entire clinical picture may change in a very short time. The only fair way is to treat all cases of Type I with serum in the beginning, whether they are mild or severe.

III. They do not use sufficient serum.

There is no definite limit to the quantity of serum that can be used in a patient who is not sensitive to horse serum; 600 c.c. is the largest amount I have used for one patient. Cole² states that up to 1000 c.c. may be necessary, but the amount required in the average case is 200 c.c. or 300 c.c. The usual procedure is to repeat 100 c.c. injections every 8 or 12 hours until recovery takes place. In many cases recovery will promptly follow a single injection of 100 c.c. of serum. In others, the temperature drops to normal in a few hours, then gradually begins to rise. Another injection of serum is then indicated.

Before administering serum it is necessary to determine whether or not the patient is sensitive to horse serum, by carrying out appropriate skin tests. Patients who are sensitive must be desensitized before serum treatment can be carried out with safety.

IV. They do not type the pneumonia.

If serum therapy is to be employed, it is absolutely imperative that all cases of lobar pneumonia be typed. Ordinarily there is sufficient time to send the sputum to the laboratory

and wait for a report, if this is done when the patient is first seen. Only in an exceptionally severe case should serum be given before the type is determined. Such determination takes on the average about 12 hours. Where sputum could not be obtained I have often resorted to lung puncture in the consolidated lung area to obtain a culture of the organism, and I have never seen complications result from such a puncture.

V. Some use a so-called "polyvalent serum" and not a specific Type I serum.

To mention the so-called "polyvalent serum" is to condemn it. There is no excuse for its use. Up to the present time a serum of sufficient potency to be of curative value has not been developed except in Type I; therefore the use of a mixed or polyvalent serum is not warranted.

It is to be remembered that Type I anti-pneumococcal serum is standardized and must have a definite protective power before it is distributed for therapeutic use.³ The Rockefeller Institute⁴ has adopted the standard that .2 c.c. of anti-pneumococcal serum must regularly protect against at least .1 c.c. of a culture which is shown by animal tests to be of proper virulence. The standardization tests are carried out by inoculating mice. So far it has not been possible to produce a serum in the other types of pneumonia which has sufficient protective power to warrant its use.

The following series of 35 cases include all the Type I pneumonia which occurred in my service at the Naval Hospital, Chelsea, Massachusetts, as well as cases treated in private practice since leaving the service.

No. cases, 35; white count average, 26,000.

No. deaths, 2; amount serum average 205 c.c.

Mortality, 5.7%; complications empyema, 2.

Febrile period, average, 66 hrs.

Two deaths occurred. One was due to empyema five weeks after the patient had recovered from pneumonia. This patient responded promptly to serum treatment. His temperature became normal in a few hours following a single injection of serum. In a few days empyema developed, for which a rib was promptly resected. The empyema proved fatal.

The other death occurred in a young man who was admitted to the hospital with all the symptoms and signs of lobar pneumonia. His sputum showed Type I pneumococcus. His throat culture was positive for diphtheria and streptococcus-haemolyticus. He was given diphtheria antitoxin followed by two injections of Type I serum, and apparently recovered, for his temperature, pulse and respiration were normal on the fourth day. On the fifth day his symptoms began to return. He received four more 100 c.c. injections of Type I serum, but did not respond to treatment. An autopsy showed a diffuse broncho-pneumonia of the lower lobes of both lungs, hypostatic pneumonia of right upper and middle lobes, with 150 c.c. of sanguineous

exudate in the right pleural cavity. Whether this patient actually died of Type I pneumonia seems questionable, as the autopsy report showed a broncho and not a lobar involvement.

The normal mortality of Type I pneumonia is 25 to 30%. The mortality in this group of 35 serum-treated cases was 5.7%. In a series of 22 cases of Type II pneumonia in the same class of patients during the same period, there were six deaths, a mortality of 27%, which is about the normal.

In 495 reported cases of type I pneumonia treated with serum there was an average mortality of 10.5%. These included many cases treated late in the disease.

The average duration of the pneumonia in this series of 35 cases as determined by the temperature and symptoms was 66 hours; in other words, the time from the initial chill and fever until the temperature was again normal was less than three days. The course of the disease was thus decidedly shortened. In the majority of the cases the fever ended by crisis. These patients were practically all treated during the first or second day of the disease and none later than the third day.

By itself this series of 35 cases is too small to arrive at definite conclusions, but when taken in conjunction with the other groups of reported cases collected from literature, it furnishes additional evidence of the value of the serum treatment, of type I pneumonia.

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2. Anti-pneumococcus Serum, *Journal*, A. M. A., January 8, 1921.
3. Freshly bottled serum may always be obtained by writing or telephoning the Department of Public Health, State House, Boston, Massachusetts, or from the Antitoxin and Vaccine Laboratory of the Department of Public Health at 375 South Street, Jamaica Plain, Boston 30, Mass. Dr. Benjamin White, Ph.D., who is director of this laboratory, recommends that the serum used be water clear, free from sediment, and free from any tinge of hemoglobin, and that it be used as soon after its preparation as possible in order that the full potency of the serum may be utilized.
4. Monograph No. 7, Rockefeller Institute of Medical Research.

A CASE OF MESENTERIC THROMBOSIS.

By JOHN G. HENRY, M.D., F.A.C.S., WINCHENDON, MASS.

ALTHOUGH, fortunately, of rare occurrence, mesenteric thrombosis is attended by such a high death rate that it must command the respectful interest of the surgeon.

Writing on this subject in the latest volume of Ochsner's "Surgery," Bottomley says: "Even with early operation, we can expect, I believe, only occasional recoveries. Operation offers the only hope, and that but little. The mortality in unoperated cases must be 100 per cent."

One of my surgical friends, who has had a wide experience in abdominal work, told me recently that he had operated on five cases, all of them fatal.

My personal experience with this condition has, perhaps fortunately for me, been limited to the one case here reported.

Mr. L., a laborer, 66 years old, patient of Dr. A. G. Pelletier, was admitted to Millers River Hospital, July 16, 1920.

He had worked in a hay field the previous day and went to bed in his usual health. About midnight was taken with severe abdominal cramps attended by vomiting.

Quoting from Dr. Pelletier's notes of the case: "I was called to see him about 2.30 A.M. At that time he had general pains in his abdomen, with severe colic of short duration, about once in fifteen minutes. The symptoms seemed to indicate an acute obstruction. A high enema cleared the bowels thoroughly and lessened the pain, but did not stop it entirely. I left the patient at 6 o'clock and returned at 10.30. Upon examination, the pain and tenderness seemed to be located chiefly over McBurney's point. As the abdominal condition strongly suggested appendicitis, I took him to the hospital."

On examining the patient soon after his admission, I found him a very spare man; in fact, his general appearance suggested tuberculosis. His pulse and temperature were normal, he had not vomited for several hours past, had but little pain, and insisted that he felt much better. His heart and lungs seemed normal, but he had some evidence of arterio-sclerosis. His abdomen was somewhat tympanitic, with marked tenderness and muscular rigidity in the right lower quadrant. There was no history of any previous attack.

It was evident that he had some serious abdominal lesion, but I expressed my doubts to Dr. Pelletier about its being a case of appendicitis.

Operation at 3 P.M., thirteen hours after onset, assisted by Dr. Pelletier. On opening the abdomen through a right rectus incision, a black mass came into view which at first glance appeared like an enormous blood-clot, but on examination proved to be a section of ileum, somewhat more than a foot in length, considerably dilated and absolutely black.

Intestinal clamps and rubber tubing were hurriedly sterilized in alcohol, and the clamps applied well to either side of the necrosed gut. A section of ileum, 18 inches in length, was resected and the mesenteric vessels tied off. An end-to-end anastomosis was done by McGrath's method, the operative area sponged out with salt solution, and the abdomen closed with a cigarette drain.

The operation occupied fifty minutes, and the patient was put to bed in fair condition. Salt solution per rectum was given at four-hour intervals for forty-eight hours. The drain was removed on the fifth day. There was no discharge except a little serum. He was given small sips of water on the third day and nothing but liquids for two weeks.

Convalescence was normal, except for a very slight phlebitis which developed just after he began to sit up. He left the hospital August 11, and a few weeks later resumed his usual work, and has been perfectly well since.

Book Review.

The Psychoanalytic Study of the Family. By J. C. FLÜGEL. Pp. 259. London, New York, Vienna: The International Psycho-Analytical Press. 1921.

This third volume in the admirable projected series of the International Psycho-Analytical Library is fully up to the standard of its predecessors. The problems which it discusses are of the greatest importance for a clear comprehension of the neuroses, as recent psychoanalytic investigation has proven that these neuroses arise on the basis of family conflicts dating from early childhood, which may later produce an inability to face the realities of adult life, when these arise as a precipitating factor.

Most of the material contained in this book has already found a place in the literature of psychoanalysis, but the author's contributions in the last few chapters are not only decidedly suggestive, but likewise original and are based upon scientific data of the first portions of the volume. The entire question is admirably treated from the psychological standpoint, while the ethical and sociological considerations are based upon what psychoanalysis has already revealed in the development of the child and its relation to the family during the periods of growth and maturity. Although the volume is clearly written, yet the material accumulated therein will be somewhat difficult to understand for one who is not already familiar with the growth and development of psychoanalysis, particularly within the last few years.

However, it will repay close study, even for the uninitiated, and both the neurologist and the pediatrician will find therein, material of inestimable value, in dealing, respectively, with the neuroses of adult life and the development of the character traits of childhood. Consequently it can be highly recommended, not only because of its sound scientific character, but likewise for the illumination it gives for a true understanding of our mental welfare and progress from the earliest days of childhood.

IMPORTANT NOTICE.

Announcement of meetings to be held on and after next Thursday should reach the desk of the Editor of the JOURNAL not later than next Saturday before noon. The printers do not work Saturday afternoon and the material is locked up in the forms on Monday, and goes to press Tuesday morning. The wrapping and mailing begins Wednesday. Please forward copy early.

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WALTER P. BOWERS, M.D., *Managing Editor*.
GEORGE G. SMITH, M.D., *Assistant Editor*.

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THE SITUATION REGARDING THE TRAINING OF NURSES.

DURING the past generation the training of nurses has developed to a remarkable degree. This has been rendered possible by the labors of many devoted women in the rapidly increasing number of hospitals scattered throughout the cities and towns of the whole country. The sick in hospitals are cared for in a remarkably satisfactory manner.

During recent years the demand for graduate nurses in various new lines of work has been tremendous. Public health, school, district, and industrial nursing have absorbed and are still absorbing so many graduates of our training schools as to create a scarcity of nurses who wish to enter private nursing and take care of the ordinary sick individual in a private house. Furthermore, the cost of nursing service has increased tremendously of recent years. This is due, in part, to the laws of supply and demand, in part to the general increase in the cost of living, and last, but not least, to the very general increase in the cost in time and money required to educate a trained nurse. So great has been this increase in the cost of sickness that various remedies have been suggested and attempts have been made in many ways to bring the expense of proper care of the sick within the means of the family of moderate income.

Chief among the measures put into practice is the training of attendants in courses of varying lengths, usually a year or less, who may go out into the communities, capable of caring for ordinary illnesses. They are not intended to compete with trained and registered nurses, but frequently, by taking advantage of the laws of supply and demand, they have in a way competed with registered nurses. Undoubtedly, there is a place in the community for attendants, and undoubtedly, in certain hospitals, it is wise that attendants should be trained. It must, however, be recognized that the satisfactory training of nurses and attendants, side by side, in any hospital, is usually a practical impossibility. Attendants should be trained in one set of institutions, and nurses in another.

While in certain particular cases, these two sets of women may fill the requirements of caring for the sick, is it probable that the real solution of the problem confronting the various communities lies in the training of these two classes? Is it not true that the present methods of training nurses are the outgrowths of attempts to overcome the fundamental objections to trained attendants? Are not our training schools for nurses today due to the recognition of the fact that nursing requires professional standards, that true professional standards cannot be attained in a short time, and that, in many instances, partially trained women will assume undue responsibilities.

Is it not probable, therefore, that the training of attendants is but a partial and at best, a makeshift solution of the problems confronting the communities? Unless a very considerable and increasing proportion of our hospitals deliberately abandon the training of nurses and undertake the training of attendants, the needs of the public cannot be met, and if they are to be met in this manner, is it not inevitable that the deficiencies in the training of attendants will be gradually filled by lengthening of the course, bettering the teaching, and raising the standards? In other words, the training of attendants will represent a second cycle in the training of women to care for the sick. From the standpoint of the public welfare, is this a desirable method of remedying present admitted ills?

Has not the public a right to ask whether there may be ways in which the training of nurses may be so modified as to permit the training of larger numbers at less expense? A shortening of the usual three years' course would automatically accomplish both of these objects. The question is whether this can be done without lowering the professional standards which a nurse should acquire and maintain. It is essential that no such deterioration should be permitted, yet it seems that much time today is devoted to subjects which are of

little value to the ordinary nurse in her work, and a smattering of that which does not really help toward inculcating and maintaining the professional standards which must become second nature. Moreover, many of our smaller hospitals are not really equipped to give three years of instruction to the bright young woman who has learned in two what can be offered her by the school in which she is enrolled. In the larger and better equipped schools and hospitals, the three years of training give much more than is needed for ordinary nursing. Is it not possible, therefore, to cut down the basic training to a period of about two years for the nurse who plans to care for the sick? Would not many bright young women who cannot afford to give three years to this course, welcome the chance to give two years? Would not such a shortening of the course open up opportunities for providing, in certain schools, a third year of training infinitely better than anything now given, for those who wish to enter special lines of work, or to become teachers or executives? In this manner the particularly able and ambitious graduate of a small training school would have the opportunity of post-graduate elective third-year work in a special school. The situation would be exactly comparable to that of the candidates in a college for the bachelor's degree and for the master's degree. There would be no rivalry between distinct classes. A picked group of nurses would simply go on to fit themselves for special work. Naturally, teachers and executives would be chosen from those who had taken advanced courses, just as school teachers are apt to be chosen from those who have taken the extra work requisite for the master's degree. But nothing would prevent the graduate of a two years' course from becoming the head of a training school if she proved fitted for such a position.

It is not practical to undertake to teach nurses in a year and a half enough to have them go out to care for certain types of illness, with the opportunity of coming back at later periods for instruction in other types of nursing. Such a system would be too complicated to be understood and accepted by the public, and too difficult for the ordinary nurse to carry out.

Must not our training schools recognize and meet the public needs? Will not a simplification of the basic training, a shortening of the course from three to approximately two years, supply well-trained women with high and enduring professional standards to go out and care for the sick? Will not the elective third year given in certain schools open the door to a very much higher and better standard of professional training than anything we now have for these nurses intending to undertake other

than private nursing? In this way, cannot nursing be made a better and a finer profession than it has ever been before?

THE CONSERVATION OF EYESIGHT.

A WORK of great importance is being carried on by the Eyesight Conservation Council of America, Inc. The aim of the Council is obvious; it seeks to accomplish its purpose, first, by arousing the interest of teachers and parents in the vision of the children under their care, and, second, by promoting measures for conserving eyesight in industry.

Pamphlets are being distributed to teachers and to parents, asking them to watch for evidences of defective vision or of eyestrain in the children. Teachers may secure from the Council a vision chart, by means of which many of the more obvious defects of vision can be detected. A study of eye conservation in industry has been carried out as a part of the study of waste in industry.* The report of this study, written by Dr. Earle B. Fowler, contains some very interesting figures in regard to the saving in eyes which has been accomplished through the use of protective devices, such as goggles. The number of industrial blind in the United States is approximately 15,000; of this number, a large percentage, in all probability, might still have their vision, if certain protective devices now in use had been employed in the beginning. The American Car & Foundry Company, for example, has found that the use of goggles has reduced accidents in their plant 75 per cent. The chief dangers are from flying objects, from dust and small particles, from dust and wind, from splashing metals, from gases, fumes and liquids, and from reflected glare and radiant energy, such as is met with in oxy-acetylene welding.

Another contact between eyesight and waste has been discovered in the effect of defective vision upon output. Defective eyes become more easily fatigued under poor conditions of lighting; the eyestrain causes nerve trauma and, consequently, diminished ability to work. The truth of this theory has been so firmly established that a number of large industrial concerns now employ an oculist to test the vision of all their operatives, and supply glasses when necessary.

Closely related to the correction of vision in employees is the provision for proper illumination. The science of industrial lighting is based upon three requirements: (1) Light enough to see by to do work—too little or too much producing discomfort; (2) diffusion to avoid sharp contrasts and deep shadows; (3)

*A copy of this report may be obtained by sending 25 cents to the Eye Sight Conservation Council, Times Building, New York City.

elimination of glare. That these requirements are not in universal use is shown by a survey of 446 plants, showing that the light conditions were excellent in 8.7 per cent., good in 32 per cent. The rest were fair, poor, or very poor.

Apparently there is much need for the efforts of the Eyesight Conservation Council, and much benefit to be secured by the carrying out of their recommendations.

CAMPAIGN AGAINST ILLEGAL PRACTITIONERS.

STIMULATED by the New York County Medical Society, the District Attorney has promised coöperation in a movement designed to prevent unregistered persons from practising medicine. Although New York has a very good law regulating practice, the irregulars have flourished because of lack of interest on the part of the prosecuting officers. The activity now in progress was inaugurated because of deaths of patients under chiropractic treatment. Chiropractics have appeared to have considerable political influence, and a recent amendment to a bill now before the legislature was presented which would, if enacted, exempt chiropractors. New York physicians are alive to the situation, but the chiropractics seem to have the democratic leader of the Senate with them. The result will be watched for with interest.

NEWS ITEMS.

THE WORCESTER DISTRICT MEDICAL SOCIETY.—The City of Worcester has reason to be proud of its latest addition to its group of buildings known as Belmont Hospital, formerly called the Worcester Isolation Hospital.

The first building, now used for administration purposes, was erected near the top of Belmont Hill in 1896, and at that time was one of the first hospital buildings to be erected by a municipality for the exclusive care of contagious diseases. Later, three wooden wings were added to the central building, and for years scarlet fever and diphtheria were the only cases admitted. In 1915, the city built, on the top of Belmont Hill, the Putnam Ward for the care of pulmonary tuberculosis. The ward, while some distance from the other wards, was connected with them and the administration building by a subway, and is heated by the same heating plant and is served from the same kitchen.

February 9, 1922, the latest addition to this group was opened for the inspection of the City Council and heads of departments. The new building has been named the Coffey Ward, in honor of the late James C. Coffey, who for twenty-five years was executive officer of the

Worcester Board of Health and under whose able leadership this hospital has grown to its present size. The Coffey Ward is a substantial brick structure of three stories, costing about \$177,000. It is connected with the rest of the group by a commodious subway, heated from the central heating plant, and served from the same kitchen, the food for all of the wards being carried through the subway on an electric truck. The first floor of the Coffey Ward has a large nurses' robing room, with the latest plumbing for sterilizing the hands after visiting the wards: a physicians' robing room, visitors' robing room, receiving ward, discharge bathroom, patients' clothing room, and a special ward of six beds for special cases, including smallpox if necessary. The second floor has four three-bed wards and twelve private rooms for mixed infections; with linen rooms, two bathrooms, utility rooms, diet kitchen and two spacious screened piazzas looking towards the west. The windows in the private rooms and wards are built in the form of French doors, so that the beds can be rolled out onto the piazzas. The third floor has two twelve-bed wards, with baths, linen closets, etc. Each ward has thirteen windows and open onto large piazzas. The floors are of cork blocks, which are noiseless and serviceable. So far as the writer knows, this is the best and most modern building to be devoted to the care of chickenpox, measles, German measles, mumps, whooping-cough, smallpox, scarlet fever and diphtheria yet to be erected. As the group of buildings now stand, the three old wards will accommodate thirty patients each, the Putnam Ward will accommodate fifty-five patients, and the new Coffey Ward sixty-eight patients, making a total of two hundred and thirteen patients, which ought to be sufficient for some time. Belmont Hospital is conducted by the Board of Health as a part of its activities, with Dr. Edward H. Trowbridge, chairman, and George C. Hunt and John F. J. Herbert as members. Dr. May S. Holmes has been its superintendent since its opening. Dr. Albert C. Getchell is visiting physician to the Putnam Ward, and Dr. Charles B. Stevens, chief of staff for the rest of the Hospital.

BEQUEST TO THE SHARON SANATORIUM.—Under the will of Mrs. E. Florence Brett of Brockton, \$5,000 has been left for the Endowment Fund of the Sharon Sanatorium.

THE MONTHLY BULLETIN, PUBLISHED BY THE MASSACHUSETTS SOCIETY FOR MENTAL HYGIENE.—This publication is an important link in the chain of efforts toward preventive health measures, and should be read by everybody. The editor is George K. Pratt, M.D. The Society office is 1132 Kimball Building, 18 Tremont Street, Boston.

HARVARD MEDICAL SCHOOL RESEARCH CLUB.—A meeting was held on Friday, March 17th, at 12.30 o'clock, and was addressed by Professor W. M. Bayliss, F.R.S., University College, London, on "Ringer's Solution and Substitutes for Blood."

HARVARD MEDICAL SOCIETY.—A meeting was held in the Peter Bent Brigham Hospital, Tuesday evening, March 14. Dr. Francis W. Peabody spoke on "Medicine in China."

DURING the week ending March 11, 1922, the number of deaths reported was 298 against 229 last year, with a rate of 20.34. There were 43 deaths under one year of age against 38 last year.

The number of cases of principal reportable diseases were: Diphtheria, 70; scarlet fever, 53; measles, 149; whooping-cough, 16; typhoid fever, 2; tuberculosis, 41.

Included in the above were the following cases of non-residents: Diphtheria, 8; scarlet fever, 6; measles, 2; whooping-cough, 1; tuberculosis, 1.

Total deaths from these diseases were: Diphtheria, 2; measles, 2; whooping-cough, 1; tuberculosis, 19.

Included in the above were the following cases of non-residents: Diphtheria, 1; tuberculosis, 1.

APPOINTMENT TO MEMBERSHIP OF BOARD OF REGISTRATION IN MEDICINE.—Dr. George Herbert Janes of Westfield was nominated by Governor Cox to fill the vacancy on the Board of Registration in Medicine. On Wednesday, March 8th, the Council confirmed the action of the Governor.

Dr. Janes is a member of the Massachusetts Medical Society and has occupied a prominent position in medical activities in the western part of the State.

THE SPRINGFIELD ACADEMY OF MEDICINE.—Tentative arrangements have been made with Dr. William Kirkham, formerly instructor in biology at Yale, to give a series of three lectures in the Academy rooms during April, on "Evolutionary Changes in the Human Body and Their Practical Significance." The plan will be consummated if enough interest be shown.

The next meeting comes April 11th, and is the annual meeting.

GRANTS FOR RESEARCH MADE BY THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF

SCIENCE.—The Committee on Grants held its annual meeting in New York on January 1, 1922, and distributed four thousand dollars which was assigned by the Council of the Association for the current year. Three members of the committee. Messrs. Crew, Parker and Stebbins, having retired at the end of 1921, the present organization of the committee is: Robert M. Yerkes, Chairman; F. R. Moulton, Secretary; E. G. Conklin, C. Judson Herrick, Arthur B. Lamb, George T. Moore, E. L. Nichols, and David White.

Among the grants distributed, several were to workers in medical fields, as follows:

One hundred and fifty dollars to Professor F. C. Blake, Ohio State University, for partial payment toward the cost of an x-ray spectrometer; two hundred and fifty dollars to Dr. A. W. Rowe, Evans Memorial Hospital, Boston, for the study of the basal metabolic rate in pregnancy; one hundred dollars to Professor W. C. Rose, School of Medicine, University of Texas, in support of a study of blood changes in nephritis; two hundred dollars to Professor Fred T. Rogers, Baylor Medical College, for a study of the marsupial brain; two hundred dollars to Professor Frank P. Knowlton, Syracuse University, in further support of the study of the blood flow and gaseous metabolism of the thyroid gland; one hundred and fifty dollars to Professor Frank A. Hartman, University of Buffalo, to aid in the further study of suprenal insufficiency.

X-RAY ROOM AT LYNN HOSPITAL.—The Lynn Hospital has installed an x-ray outfit of the latest design to replace the old equipment. The accommodations for this class of patients is ample. Last year there were 1,240 cases in the hospital requiring x-ray treatment or investigation. Dr. Ester Sunderlof, a graduate of Tufts College Medical School, is in charge.

COURT DECISION ON QUARANTINE OF VENEREAL DISEASES.—In the habeas corpus proceedings brought before him, the Chief Justice of the Supreme Court of Montana has decided that a person, who was detained by order of a health officer because reasonably suspected of being venereally infected, was not entitled to a judicial hearing prior to the time of taking and detention.

DR. JAMES H. MEANS of Boston will speak before the New York Academy of Medicine (Medical Section) March 21, 1922, at 8.30, on "Clinical Types of Acidosis, with Reference to Their Symptoms and Treatment."

Reports of Societies.

THE 36TH ANNUAL MEETING OF THE INSTRUCTIVE DISTRICT NURSING ASSOCIATION. HELD AT THE HOTEL VENDOME. THURSDAY, FEBRUARY 23. AT 3.30 P.M.

OFFICERS elected for the coming year: Mrs. Ernest Amory Codman, President; Miss Gertrude W. Peabody and Mrs. Robert L. DeNormandie, Vice-Presidents; Miss Emily G. Denny, Secretary; Mr. Ingersoll Bowditch, Treasurer. The board of managers was confirmed in office.

Mrs. Codman, who presided, reviewed the year's work and introduced the other speakers: Miss Annie Hervey Strong, Director of the School of Public Health Nursing, for which the Association and Simmons College are jointly responsible, spoke of the work of the school. The Helen Homans Memorial Nurse, Miss Agnes V. Murphy, Supervisor of the Hyde Park Health Center, described the Center and its activities. Miss Miriam A. Ames, Maternity Supervisor, spoke in some detail of the maternity work.

Mr. Ingersoll Bowditch, Treasurer, reported that the expenses for the year were \$227,964.37; income, \$218,182.64; the deficit of \$9,781.73 being met from the unrestricted fund.

Because of the excessive pressure of nursing work, only a few of the nurses were present. Under normal conditions, the full staff attends the annual meetings.

Mrs. Codman paid a high tribute to Miss Mary Beard who, after nearly ten years of devoted and effective service, resigned her position of Director last fall, to take a long rest.

The work of the Association is being carried temporarily by the Board of Managers and the Chief of Staff and her assistant, in the hopes that Miss Beard may accept the invitation of the Board to return to take up her position in October.

Mrs. Codman called attention to the report of Miss Murphy, Supervisor of the Hyde Park Health Center, where the generalized nursing policy of the Association is being more fully developed by the addition of Baby and Child Health work.

The results of this experiment of allowing one nurse to take care of sick and well babies, under the supervision of specialized supervisors, are particularly interesting—the death rate of children under one year being 11 per 1000, compared to the city death rate of 77 per 1000. The same experiment tried in Brighton has a record of no deaths.

It is interesting to find that the trend of public opinion seems to be in favor of this method of public health nursing. Professor

Winslow of New Haven, Chairman of the Rockefeller Committee to Investigate Nursing Training, at a recent meeting held in Boston, stated his belief in this form of nursing, and quoted the figures of the results of the New Haven Health Unit, where generalized nursing is being done, while the rest of the city is being nursed by several groups of specialized nurses. Twenty per cent. more work is done in the unit, and one-sixth of the nurses of the city do one-fifth the work.

The next development that the I. D. N. A. is planning along these lines is to add to the group of specially trained supervisors an orthopedic supervisor and a mental hygiene supervisor.

As evidence of the good-will of doctors of the community, it is encouraging to find that 600 private doctors have called upon the services of the nurses, which seems to prove that the nurses are an essential help in their practice.

Report of the Work of the Year of 1921, read by Mrs. Codman. There were 288,086 visits made to 34,805 patients—1,855 fewer patients than in 1920. Considering the exceptionally fine health conditions which existed throughout the entire country during 1921, this is a very small decrease and would have been much greater had there not been a good increase in the other branches of our work affected less, or not at all, by the general health conditions.

To carry this work, we had 123 nurses.

ACUTE COMMUNICABLE AND CHRONIC DISEASES.

Decrease. The acute and communicable diseases, which were more than 58 per cent. of the entire work in 1920, dropped to 38 per cent. of the work of this year. There was a decrease in all of these diseases, more pronounced in influenza, which dropped from 2,307 cases in 1920 to 268 in 1921; pneumonia, from 1,463 to 913; bronchitis, from 1,303 to 908. There were also fewer cases of measles, whooping-cough, chicken-pox, and mumps—1,797 falling to 903 cases. This decrease in the number of patients was accompanied by a very much lower death rate than that of the previous year.

Slight Increase. Accidents, i.e., burns, traumas, fractures, etc., slightly increased this year; also diseases of digestion and of the skin. A slight general increase in the chronic diseases included: cancer, 257 to 297 cases; diseases of the heart, 325 to 392 cases.

MATERNITY WORK.

The maternity work increased from 23 per cent. to 40 per cent. of the entire work of this year. This is very encouraging, as there were very few, if any, more births in Boston this

year, and the increase can only mean that a knowledge of our work has extended to still more homes where it is needed. About 30 per cent. of Boston-born babies now come under the care of the district nurses. The maternal death rate of this year of 2.8 per 1,000 cases, while slightly higher than last year, is very creditable as compared with the rate for the city as a whole—7.5 per 1,000 cases.

The principal increase in maternity work has been among the cases admitted during pregnancy. To 5,171 of these pregnant women, 32,784 visits were made. The stillbirth rate, which was 35 per 1,000 in 1920—an alarmingly high figure—has dropped to 30 this year. While this is encouraging, the rate is much higher than our former experience with prenatal work has taught us to look for. The infant mortality under two weeks is 21.3 per 1,000 as against 13.3 of last year; this is the highest rate for several years. These stillbirths and infant deaths have been carefully studied, with no resulting explanation of the increased number. It is generally felt that the poor economic conditions of the past year have affected these rates, but no real explanation has resulted from this study.

There was a slight increase in the number of deliveries attended this year. The infant mortality for these cases was only 17 per 1,000, under two weeks.

WELL-BABY AND WELL-CHILD WORK.

The result of the care of the babies registered at the three Baby Health Clinics in Brighton and Hyde Park has been the most remarkable feature of the entire work of this year. For infants under one year, the death rate dropped from 12.2 per 1,000 in 1920,—a very fine rate—to 5.3 this year, against a rate for the entire city of 77.8.

The Child Health Clinic, started in Hyde Park, February 8th, will be described by the Hyde Park Supervisor.

FEEES.

The patients paying the full fee of 75 cents, and those paying part, have each dropped from 11 per cent. to 10 per cent. of the whole number of patients. Those paying no fee remain 48 per cent. This latter figure includes those patients for whom preventive work is done, for which no fee is asked.

Detailed report of the Hyde Park Health Center and of the maternity work, by Miss Agnes V. Murphy and Miss Ames, follows:

Much attention and interest at this particular time is being directed toward the two health centers of the Association, of which Hyde Park is one. The history of the growth

of the Health Center at Hyde Park is most interesting, and the steps of its development mark a progress in health work in response to the needs of the community. From one nurse, a little over eight years ago, the work has steadily grown to require a staff of twelve nurses who, through the various activities connected with the Center, cared for 3,875 patients in the year 1921. The development of each new service, in addition to the work already established, has rounded out the plan for family health work and has made it possible to give and demonstrate the value of continuous nursing in the families we visit.

Hyde Park District. To have a good understanding of the application of the work, it is necessary to have in your minds a fairly clear picture of the district. Geographically, Hyde Park is situated on the outskirts of the city, touching Milton and Dedham, and while certain sections of the district are quite congested, other parts present some rural aspects. The population, numbering 24,000 inhabitants, is largely American, with other nationalities, as Polish and Italian, in small proportions. Various types of industries are represented. The district, which is a bit isolated by reason of distance and transportation from the city proper, presents, to a certain degree, the problems of a typical small New England town.

The location of the Health Center is quite central to all the sections of the district. It occupies quarters in one of the business blocks on the main avenue, and from this Center radiates the health work carried on by our Association in the families of Hyde Park. In the arrangement of the work, Hyde Park is subdivided, so that each nurse working in the field has her own particular district where she becomes a known figure to the families of that section, ready always to give care or health instructions wherever and whatever the need may be.

Types of Work. The nursing work done in Hyde Park is different from that of the other districts of the Association, only in that through the various activities of the Center, the nurse visiting in the home can reach more families in the district and can preserve in the families a continuity of service that is frequently broken in the other districts where other nurses must enter the home to give special service, as happens, of course, where specialized nursing work is being done. In addition to this, there is a very distinct opportunity to do real educational health work, and this is being carried on in both the homes and at the Health Center, by the nurses of the staff.

Nursing. The general nursing work, with which all are more or less familiar, and with which the work in Hyde Park began, still con-

tinues to be a very important phase of the work there today. This service, under the direction of 30 physicians, for whom we nurse, might include care to a mother and new baby, to a pneumonia or a cancer case; in short, to any acute or chronic patient. It is carried on the same basis in Hyde Park as in any other district of the Association, and here, too, we not only care for the sick, but try, by our teaching, to maintain standards of health and to prevent sickness.

Prenatal. The value of prenatal care, a form of nursing also begun in the early days, cannot be overestimated. Regular visits to expectant mothers, of whom, last year, in Hyde Park, we had 294, were made under the direction of clinic physicians, to teach them how to keep well and prepare for the babies, to detect by careful observation and urinalysis abnormal symptoms, to be ready to give the right advice at the right time. Such care and instructions have helped to reduce maternal deaths among the patients to none for 1921, while for the city, 7.5 out of every 1,000 mothers died.

Maternity. Through a gift of \$3,300 from the Metropolitan Chapter of the Red Cross, in 1920, maternity nursing service or care at the time of confinement was established. This makes it possible for every mother in Hyde Park to have, not only care before and after the baby is born, but enables her to have expert care when the baby is born, a service which is not only a distinct benefit to the mothers, but an advantage to the physician as well. To do this work, two nurses are on call alternately, day and night. These nurses, when not on maternity cases, during the day, are doing generalized nursing in their own districts, within call of the station. The value and importance of this service is to be explained more fully later.

Baby Health Clinics. We have been able to care for the mother before the baby came, at the time of birth, and afterwards, and now, as soon as the baby is old enough, the mother is urged to bring him to the Baby Health Clinic, which admits any child up to two years. Here, under the advice of the two pediatricians, who are present at the weekly conferences held at the Center, and who are assisted by a nurse from the staff, the mothers are guided along the ways of keeping their babies well, and are helped to lay firmly in these tiny beings, the foundations for future healthy citizens. The visits to the Clinic are followed in the homes by the nurses, who visit, at regular intervals, to carry out directions of the Clinic physician and to further instruct the mothers in the proper care of their babies. As this Clinic is

only for well babies, in case of sickness the baby is referred to the family physician for care and treatment. The comparison of the infant mortality figures of the city, which in 1921, for babies under one year, was 77 deaths out of every 1,000, and those of the registered babies at the Hyde Park Clinic, which was 11 out of every 1,000, in itself speaks for the effectiveness and necessity of this work.

Child Health Clinic. No less worth while is the Child Health Clinic, which admits children from two to fourteen years. When the baby graduates from the Baby Health Clinic, our instruction and supervision do not have to cease, for he can enroll in this Clinic. While this Clinic is not as old as the Baby Health, already, through it, many defects often unnoticed by the parents, have been detected, and much corrective work, which is usually slow, has been accomplished. In examination of 370 children, only 24 were found free from defects; average, two to three defects; 104 were found to have tonsils and adenoids (36 have been operated on); 105 were found to have dental caries, and work for about 45 per cent. of these children has been started or finished. Each child receives a thorough examination when enrolled in the Clinic, and recommendations for the correction of these defects are made by the examining physician. Always, the child is referred to his family physician or to a clinic, if treatment is necessary. These children are visited regularly in the homes, by the nurses, until the defects are corrected, and then less often, but at regular intervals, to continue supervision. Through these channels, there is a vast opportunity to do constructive health work. The many postural and nutritional defects have made the establishment of a Nutrition and Posture Clinic at this time almost a crying need. The material is ready and at hand, in the children who need this particular instruction to help them correct their faulty diet and health habits and poor posture. Through group instruction, much could be accomplished by way of stimulating the interest and the spirit of competition in these children who, even now, without much invitation, are eager and enthusiastic. With a view towards doing as thorough and effective work as possible, it is our firm hope that these classes may soon be started in connection with this Clinic. Coöperation of parents and children alike has been most encouraging, and although the Clinic is just a year old, the total registration is 375 to date.

Dental. The Dental Clinic, established in 1918, as a result of a demonstration carried out by our Association in connection with the public schools, is still being conducted two days a week, treating, on an average, fourteen pa-

tients a day. Although all the families we visit are not eligible to this Clinic, as the system does not admit families whose income exceeds \$6.00 per capita, there is a great need for dental work, more than we are able to give on our present schedule. Through the Child Health Clinic and our work in the homes, we are reaching a few pre-school children, and it is our intention to emphasize this pre-school work more and more, as we realize and appreciate that it is with these children that our opportunity to stress preventive dentistry lies.

Hourly Nursing. Hyde Park also offers the community an hourly nursing service, which means that to people desiring a nurse at a special hour, or for a stated length of time, this service can be arranged on a fee basis that would make this branch of work self-supporting.

Infantile Paralysis. Special exercises and treatment for these children are given every other week at the station by one of the nurses of the Association, especially trained for this work. These classes enable her to reach more children, and through them, the parents receive a certain stimulation and encouragement which they much need in the long treatment of this affliction.

The activities of the Center and the work in the homes are very closely allied, and it is a plan to have nurses in the field regularly assist in turn at the Clinics, in order that they may become acquainted with the methods of the Clinic physician, to confer with him if they wish, about any special difficulty, and in order, also, that they may occasionally meet their own families at the Clinic. Assistance at these clinics is also given by volunteers, mostly from the Hyde Park Local Committee, which at all times has given much real support and has done much to stimulate the interest of the community. In visiting the home, the nurse may have in one family, baby John, registered at the Baby Health Clinic; Mary and Billy, two youngsters who are patients at the Child Health Clinic and who, with brother Joseph, are connected with the Dental Clinic; the mother may be receiving prenatal care and instruction; if there is illness, the nurse stands ready, under the family physician's direction, to give that care, too, so that in a true sense, her capacity is one of nurse and teacher. Lectures for the nurses, by the Clinic physician, on subjects relative to the work done through the clinics, and by the dietitians from the Dietetic Bureau, have been given in the station, so that better informed and armed, with the opportunities before them, the nurses may continue to do through a continuous nursing service, real constructive health and educational work in the families, and by so doing, raise and maintain standards of health in the community at large.

FIRST MEETING OF THE ADVISORY HEALTH COMMITTEE OF THE NEW ENGLAND DIVISION, AMERICAN RED CROSS, AT THE HOTEL VICTORIA, BOSTON, MASS., FEBRUARY 28, 1922.

Present: Of the Committee, Dr. Charles Macfie Campbell, Director of the Psychopathic Hospital of Boston and President of the Massachusetts Mental Hygiene Society; Dr. Charles F. Dalton, Secretary, Vermont State Board of Health; Dr. Eugene R. Kelley, Commissioner of Public Health of Massachusetts and President of the State and Provincial Health Officers' Association; Dr. Clarence F. Kendall, Commissioner, Maine State Department of Health; Dr. William Rice, Dean of Tufts College Dental School, President of the Dental Hygiene Council, and Vice-President of the Massachusetts Dental Society; Dr. B. M. Richards, Secretary, Rhode Island State Board of Health; Miss Anne H. Strong, Director, School of Public Health Nursing of Simmons College; also Arthur G. Rotch, Manager, New England Division, American Red Cross; Cheney C. Jones, Assistant Manager, New England Division, American Red Cross; Miss Katherine McMahon, Consultant in Health Work, New England Division, American Red Cross; Miss Mary K. Nelson, Director of Nursing, New England Division, American Red Cross; Earl F. Gates, Director of Public Information, New England Division, American Red Cross; Dr. John T. Black, Commissioner of Health, Connecticut.

Absent: Of the Committee, Dr. Charles Duncan, Secretary, New Hampshire State Board of Health; Dr. David L. Edsall, Dean of Harvard University Medical School; Dr. Walter P. Bowers, Editor, *Boston Medical and Surgical Journal*.

The meeting was a luncheon meeting with Mr. Rotch the host. It continued from 1.15 p. m. to 3.15 p. m.

Mr. Rotch outlined briefly the American Red Cross organization. He stated that the organization has a national headquarters in Washington and Division offices, which are, in effect, branches of national headquarters, having supervision over groups of states, the New England Division consisting of the New England States, except Connecticut; that the Chapters form the body of the Red Cross organization. Some of the Chapters, he explained, are County Chapters, having an entire county for their jurisdiction, with Branches in the cities and towns; other Chapters have one community. The National Organization, through the Divisions, exercises control in two respects: funds and standards. It has the right to say that Red Cross funds shall not be spent for purposes not in accordance with the Red Cross program, and that certain standards shall be maintained. Otherwise its work is advisory. It does not say to a Chapter that it must do a certain piece of work, except in connection with Home Service for disabled men. The Division headquarters has a staff of experts on the various Red Cross services who advise and assist the Chapters and their Branches. He stated that about one million dollars was raised in the recent Roll Call in New England, the greater part of which remains in New England.

Mr. Jones briefly outlined some of the work of the Littleton, N. H., Chapter, to illustrate the sort of health activities carried on by Chapters. This Chapter has had public health nursing the past three years, including school and district nursing. He spoke of two features: The owner of the motion picture theatre is interested in the work. He invited the class in home hygiene and care of the sick to hold its graduation exercises in his theatre. He ran a film illustrative of this instruction, the class was presented with the certificates, and a ten-minute talk was given, with 575 people present. Discussing another phase of the work, he said a surprising number of cases were discovered of children who needed correctional treatment. Through Chapter activity, one boy, with a nail in his lung, was taken to Boston, where a remarkable operation was performed without the use of surgical knives. In another case, a girl, unable to use her legs because of infantile paralysis, was given treatment and is now able to walk. Such cases, he said, are too generally accepted as inevitable facts, and no effort to remedy conditions made. There are many things that can be corrected, he said; the people are stirred up, they need help and guidance such as members of the Committee can give.

Mr. Rotch read the statement of Red Cross policy in health work as formulated by a Committee of Division Managers at a recent conference in Washington.

Miss McMahon presented an outline of all the health activities in the New England Division territory, under Red Cross auspices. Her outline was based on a tabulation, a copy of which is attached. (See page 404.)

In addition, she called attention to work in first aid and life saving. First aid is organized among such groups as railroad workers, postal clerks, and industrial workers. The standards have been carefully worked out. In water life-saving, she stated that 2,000 have taken the examinations and have received certificates.

She outlined three fundamental ideas underlying the health work: (1) It should have variation—be flexible and adaptable to local needs; (2) it should fill in gaps in health work; (3) it should have the element of temporary service, provide for taking the next step in developing an all-round community health program. The technical help of the Committee is needed in taking the next step wisely.

For a definite problem for the consideration of the Committee, Miss McMahon presented dental work. What is the best way to do it? What are the difficulties? What are the mistakes easily made and to be avoided?

She presented the Middleboro, Mass., Chapter, in illustration. Middleboro is the Chapter city, with Branches in three towns—Carver,

Rochester, Lakeville. There are some 1200 school children in Middleboro, 500 in the towns. The Chapter has money. It is interested in spending it in dental work.

If the farmer wants a cow, he buys it, she said. Why does he not buy dentistry? The opposite of selling dentistry is to bring it in free. What is there between the extremes, until "the farmer realizes his need"?

Dr. Rice opened the discussion. He said the people should be encouraged to establish the habit of caring for their teeth. Little consideration is given the subject. They need encouragement and information regarding the relation of the condition of the teeth to general health. He believes the dentists are in favor of free clinics. They generally encourage it. He believes such activity will meet no opposition among dentists. Such activity is needed in every community, particularly in rural districts. He can see no objection to the Red Cross taking up this work.

He said the Hygiene Council is preparing a new list of equipment for a dental clinic at the request of the Massachusetts Department of Public Health and, when completed, this can probably be made available to the Red Cross and to the other state health departments.

Mr. Rotch stated that in general the Red Cross has operated dental clinics in towns where there are no dentists, and spoke of the traveling dental clinic in Hampshire County, which has met no opposition.

Dr. Kelley said there were two or three problems; for instance, how to work out a general health program, how far the local attitude is to be considered. He said his department would be guided by the Dental Hygiene Council as to what the functions of a dental clinic are. There is the question whether they are curative or preventive. He said he would have to settle the problem sooner or later, so far as the State Department is concerned. He said the Department dental officer (Dr. Schmidt), the officer in charge of child welfare (Dr. Champion), and the Red Cross field representatives were not in agreement.

We will probably have to get back to home rule, he said, find out what the people want, and try it out. The dental question is interesting, but he sometimes wished the dental profession were not ready to go so fast. The medical attitude is one of suspicion that there is infringement on the curative side. The dentists as a whole have more work than they can do, so the more clinic work there is the better, as it does not interfere with the welfare of the dentists. There is a large field for preventive work in oral hygiene in all the New England states. The traveling clinic is not the solution—they are more nearly standing clinics.

Dr. Dalton told of a year's work in Vermont,

financed by private donation. Only children between six and twelve years were taken, and a clean-up job was done on each. It was very successful. The money gave out. All the work was free. There was no investigation of the applicant. Permission of the parents was secured. The clinics were in rural towns. The average work was two extractions and seven fillings per child. The children took to it. He expressed belief that a dental clinic should be free, if possible, and it should be definitely decided who should and who should not have free treatment.

Dr. Kendall said he did not see the Red Cross running into danger in this work. He said a dental bureau has not been established in his department. It is a question whether to charge a fee or have treatment free.

Dr. Richards thought it would be better for the Red Cross to establish work in a community rather than conduct a traveling clinic. He described a clinic he established some years ago in Pawtucket, which is continuing now as a Red Cross activity.

Many go to their own dentists, he said, as the result of services they have received at a clinic. (This statement met with approval.)

Dr. Kelley said that hitherto clinic work has been haphazard. What is its relation to the future? We should see it move towards something permanent. He questioned whether the clinic in Pawtucket should not have been taken over by the city.

Dr. Richards said he thought it would have been as well if the city had taken it. He said he advised a health center in Pawtucket to take over all the welfare services, but emphasized the belief that no one organization should run it. The plan got away from him, however, and it all went to the Red Cross. He has no fault to find with the way it is run, but believes it would be better to have it a Pawtucket health center and accept gratefully all help offered. We should see the taxpayers tied to it, he said.

Mr. Rotch: We advised against it. It is the only one in the Division like it.

Mr. Jones spoke of the Nashua, N. H., community council, made up of two representatives of each organization. The Chapter Executive Secretary is loaned to the council. It has not gone as fast as the center in Pawtucket, but he thinks it is safer.

Mr. Rotch stated he would send the Committee a statement on the Red Cross Nursing Service for consideration and discussion at the next meeting.

Miss McMahon suggested that it would be valuable if the Division Field representatives should receive counsel from the Dental Hygiene Council in working out the technical problems involved in establishing dental clinics,

and Dr. Rice responded in favor of such a plan.

Dr. Campbell, on request, spoke on Mental Hygiene. How far the Red Cross is looking forward to entering this field, he stated, is not for me to say. All Red Cross workers, whatever they are doing, come into situations in which they are asked about family affairs, the morality, waywardness, etc., of the child. That is preventive medicine. It is not time for clinics in sparsely settled places, but wherever there are groups, as in schools, some sort of interest in mental equipment should be created. He spoke of the difficulty of looking after the child in the poorer homes. He mentioned tantrums, food, sleep, sex habits, as problems presented in the child. Information about such problems is available. It is comparatively simple. Consciousness among doctors and nurses that there are these mental health problems is lacking. If we do not pay attention to mental hygiene we cripple educational work in physical hygiene. He said it would be possible to have, at an early date, a program for putting fundamental factors before teachers and principals, and the nurse should have special instruction if she is to work with children.

Dr. Black, on invitation, outlined the plans and the program for the regional health institute, to be held in Hartford, Conn., May 1 to 6, with the backing of the United States Public Health Service and the New England States. All the States and the Harvard and Yale Medical Schools have joined in the program. It will be, not a conference, not a convention, but a school. There will be 12 courses: Public Health Administration; Preventable Diseases; Sanitation and Sanitary Engineering; Tuberculosis; Venereal Diseases; Child Hygiene; Public Health Nursing; Social Work; Mental Hygiene; Industrial Hygiene and Accident Prevention; Sanitary Control of Food; Nutrition. Men, eminent nationally and in their own states, will deliver addresses. There will be lectures from Monday to Friday, and field trips on Saturday. There will be no tuition fees. Tuesday will be health officers' day; Wednesday, physicians' day; Thursday, nurses' day; Friday, a general program.

A suggested procedure for securing the support and coöperation of the local physicians for a Public Health Nursing Service was submitted.

I. Representation on Committee. The local health officer and a physician should be members of the Nursing Activities Committee or of the Executive Committee where there is no N. A. C. Neither one, however, should be Chairman. In order that the doctor should represent the medical men of the Chapter's

jurisdiction, it would be well to ask the Medical Society or, where there is no Medical Society, the physicians as a group, to nominate some doctor of their own choice to act as their representative in the Chapter.

The health officer on the committee would serve the following purposes:

1. To secure for the Public Health Nursing Service the approval and backing of the local health authority.

2. To provide mutual information, understanding and sympathy.

3. To strengthen and supplement the work of both the health officer and the nurse, through coöperation.

4. To secure the greatest measure of mutual usefulness through compatibility of plans of work.

The physician on the committee would serve the following purposes:

1. To advise the committee and the nurse on ethical and technical principles and problems.

2. To be the connecting link between the nursing service and the doctors.

3. To take up with the doctors all matters needing their approval, advice, or assistance.

4. To interpret the Public Health Nursing Service to them and to assist in building up better understanding.

II. Procedure. Early in the process of establishing a Chapter Public Health Nursing Service, the health officer and a doctor nominated as above, should be made members of the committee. Soon thereafter, the medical member of the committee might place before the Medical Society, or the doctors as a group, the ethical principles recognized by the Chapter as governing the Public Health Nursing Service, and might seek their advice and approval of certain practical procedures for the nurse. Another member of the Executive Committee or the N. A. C. and the public health nurse ought to be present at any such meeting, and to be given ample opportunity to explain and to answer questions.

Three general principles recognized by the Chapter and the nurse as governing her activities should be stated as follows:

1. The nursing of patients shall be carried on only under the direction of a physician.

2. In advising relative to securing medical treatment, the nurse does not choose between schools of medicine, or between individual practitioners. Such choice must be left to the individual or to the individual's family.

3. The nurse advises with reference to securing special surgical and medical treatment, but only after consultation with the physician, where one is available.

The first applies, of course, only to actual nursing. Prenatal care, as well as other forms

of advisory service in the rural districts, may be, and usually is, carried on by a nurse for some time while she is trying to persuade the patient to see a doctor.

The second means that a nurse should not suggest that a patient employ an allopath in preference to a homeopath, an oculist in preference to an optometrist, Doctor Jones in preference to Doctor Smith, or even advise against chiropractics.

The third refers to the nurse's procedure in those cases which need the care of a specialist, such as a mental, orthopedic or tuberculous case.

III. Professional problems arising in the process of caring for the sick and of applying the above principles. After presentation and explanation of these regulations, certain problems that are sure to arise early in the performance of the nurse's work might be discussed. Some of these are as follows:

1. Will the doctors authorize a set of standing orders which the nurse may use in giving nursing care on her first visit to a patient, if the patient has no doctor or if the nurse cannot get in touch with the patient's doctor, and may also use on subsequent visits if the doctor in attendance has left no orders for the nurse and cannot be reached?

It is understood that such orders do not authorize a nurse to continue giving nursing care to a patient who has no doctor; that the nurse will give no nursing care after the first visit if there is no doctor in charge; and that the nurse will make every effort to get in touch with the doctor in order to secure his specific instructions in person.

A suggested set of standing orders is attached. This is a copy of the set in use by the Chicago Visiting Nurse Association, authorized by the Chicago Medical Society. Other large city visiting nurse associations have almost identical standing orders authorized by their respective medical societies.

2. In the absence of a public doctor for the poor, to whom shall the nurse refer indigent patients for diagnosis and treatment?

3. In the absence of a family doctor, or if the patient does not know the local doctors and asks the nurse to recommend someone, what would the Medical Society suggest that she do? The usual practice is to give the patient a list of all the doctors in the neighborhood, but not to recommend any particular doctor.

IV. Professional problems arising in the inauguration of school nursing. Where the Red Cross inaugurates school nursing and the Board of Education or other public department does not provide school doctors, the Chapter, in coöperation with the Board of Education, will:

a. Ask volunteer assistance from the Medical Society.

b. If unable to get voluntary medical assistance, will explain to the Medical Society the need and extent of health inspection as carried on by school nurses, and will get its approval of such inspection.

c. Will adopt, with the approval of the Medical Society, policies concerning the securing of medical attention for indigent children, the exclusion of children from school for symptoms of communicable diseases, and the issuing of standing orders to nurses for the treatment of cuts, bruises, burns, and similar minor ailments. (If standing orders for nursing care, as described above, have not already been secured.)

Health work by Chapter school nurses forbids the nurse to make diagnoses, to recommend specific treatment, or to refer the children to individual doctors other than the family doctor. It permits the observation of condition of eyes, ears, nose, throat, skin, breathing, posture, general physical and mental make-up, and notification of these conditions, with explanation to parents. It recommends that competent professional advice be sought; also instruction in hygiene,—personal, home and school,—and the organization of health clubs and classes.

In order to accomplish this, the Chapter official, the doctor on the N. A. C., the superintendent of schools, and the public health nurse might meet with the Medical Society or the doctors as a group to present and explain these problems of school nursing.

V. *Professional problems arising from the needs of clinics.* When the work of the nurse uncovers a pronounced need for medical or surgical treatment for which there is no adequate local provision and no existing agency ready able to develop the necessary facility, the need should be placed before the Medical Society or doctors as a group, the same way as described above.

The establishment of a clinic should be presented as something that needs to be done and that preferably the local doctors should do it by providing their services in rotation or according to some other equitable plan. If they have not the time or do not feel qualified to conduct special clinics, or do not want to do so, their suggestions should be requested as to how the necessary medical service for the clinic can best be secured. No doctor should be brought in from outside until the local doctors have considered the work themselves, and have approved of the introduction of an outside man. No doctor should be brought in of whom they do not approve.

In all clinics in which it participates, the Red Cross insists that the responsibility for and direction of medical work shall be solely in the hands of the medical profession. As to

payment of services by patients, this shall be determined by, and according to, a procedure approved by the local Medical Society. The Red Cross approves the principle of payment for medical service at a reasonable price, and if this payment cannot be obtained from the patient, that physicians should receive the proper remuneration from some agency for professional services they may render. Where physicians are engaged, therefore, in a clinic in which the Red Cross participates, the Red Cross will discourage the employment of volunteer physicians for this purpose, and encourage the provision of an adequate fee for the physician.

Consultation centers for expectant mothers and well babies are not considered to be clinics, and although the Red Cross recognizes the very great desirability of having a doctor in attendance at consultations of these kinds, it believes that much good can be accomplished without the attendance of a physician, and it will undertake to establish such consultation centers with a public health nurse in charge and without the immediate supervision of a physician when such cannot be obtained.

STANDING ORDERS FOR THE PUBLIC HEALTH NURSE.

For All New Patients. Cleansing bath, P. R. N. Instruction in hygiene of the sickroom, with special emphasis on good ventilation, cleanliness, and diet suited to the patient's conditions and needs.

For Patient with Fever, Undiagnosed. Liquid diet. Low S. S. enema, P. R. N. when no abdominal pain or tenderness is present. Sponge for R. T. 102.5.

For Infants and Children with Fever, Undiagnosed. Normal salt flushing, P. R. N. Diet—Boiled water for twenty-four hours.

Burns. Remove clothing if not attached to skin. If adherent, cut away as much as possible and apply normal salt or boric solution dressings.

Colds. Low S. S. enema. Liquid diet. For adults, plenty of hot water to drink.

Infantile Diarrhea and Infantile Convulsions. Normal salt flushing, P. R. N. No food. Boiled water for twenty-four hours.

For Infectious Diseases. Isolate. Boric solution for eyes and nostrils, P. R. N. Vaseline or cold cream for lips and nose, P. R. N. Oil rub, P. R. N., for all desquamating cases. Liquid diet. Sponge for R. T. 102.5.

For Discharging Ears. Cleanse the outer ear with moist boric solution swabs. Dry thoroughly. Do not irrigate. Emphasize need of prompt medical attention.

For Dressings, Minor (Cuts, Bruises, Infected Fingers, Scratches). Apply hot boric packs. Advise medical attention.

For pleurisy. Apply tight binder to chest.

A SUMMARY OF THE NUMBER OF COMMUNITIES IN THE NEW ENGLAND DIVISION OF THE AMERICAN RED CROSS
IN WHICH RED CROSS HEALTH WORK HAS BEEN OR IS NOW BEING CARRIED ON.

	NURSING.			CLINICS.					CLASSES.			CONFERENCES.		EXHIBITS	FEBRUARY 28, 1922	LIFE-SAVING.
	General.	School.	Infant Welfare.	Dental Hygiene.	Dental.	Tonsil and Adenoid.	Baby.	Eye.	Veneral.	Tuberculosis.	Orthopedic.	Home Hygiene.	Nutrition.	School Lunch.	Posture.	Older Children.
Maine	27	19	..	1	4	1	3	4	1	..	..	10	..	..	..	1
New Hampshire ..	30	15	..	..	3	2	8	..	..	..	..	22	4	5	1	1
Vermont	18	17	3	..	5	8	4	2	..	..	..	9	1	..	..	..
Massachusetts ...	37	10	*6	..	15	2	13	1	..	..	..	43	4	8	..	..
Rhode Island	4	1	..	..	2	..	..	..	..	..	..	4	..	..	..	..
Totals	116	62	9	1	29	13	28	7	1	2	1	88	9	13	1	20

Seventeen general nursing services have been taken over by public authorities, fifteen by private agencies; a total of thirty-five.

*One obstetrical in Massachusetts.

First-Aid figures in preparation.

Pneumonia. Cold air treatment if possible. Low S. S. enema, P. R. N. Sponge for R. T. 102.5. Liquid diet.

STANDING ORDERS FOR THE VISITING NURSE
ASSOCIATION OF CHICAGO.

Sore Throat. Liquid diet. Isolate, if possible, until physician sees case.

Typhoid Fever. Low S. S. enema, P. R. N. Sponge for R. T., 102.5. Milk diet. Emphasize need of screens, fresh air, cold drinking water (boiled, if possible). Disinfection of stools.

Ulcers, Chronic. Cleanse with lysol or boric solution. Apply hot boric dressings and firm bandage.

Obstetrical Cases. For the Mother—Cleansing bath; local cleansing with lysol solution; abdominal binder; change pads; breast binder, P. R. N.; low S. S. enema, P. R. N. For the Baby—Alcohol dressing to cord; oil and bathe; soap suppository. P. R. N.

[N. B.—Any or all of these orders may be cancelled or substituted for at any time by the physician on the case who prefers to leave *specific written orders* in each family. These standing orders are merely suggested as aids to both the physician and nurses, and will be carried out when no other orders are left. Nurses will communicate with the physicians by telephone whenever possible, but the above orders are intended to serve for the interim.]

THE AMERICAN SOCIETY FOR THE
CONTROL OF CANCER.

THE annual meetings of the American Society for the Control of Cancer and of its Board of Directors were held in New York City on February 25th. The following officers were elected:

President: Dr. Chas. A. Powers.

Vice-Presidents: Dr. Clement Cleveland, Dr. M. F. Engman, Dr. James Ewing, Dr. Edward Reynolds.

Honorary Vice-President: Sir Arthur Newsholme.

Secretary: Thomas M. Debevoise.

Treasurer: Calvert Brewer.

Chairman of the Board of Directors: Dr. Edward Reynolds.

Chairman of the Finance Committee: Mrs. Robert G. Mead.

Dr. Chas. N. Dowd, Dr. John C. A. Gerster, and Mrs. Samuel Adams Clark were elected Directors to serve for three years.

The report of President Powers was read and accepted. It detailed the greatly increased activities of the last year and the pressing de-

mands for extension of the work of the Society which were daily coming in.

The report of the Finance Committee showed that the expenditures of the last year had amounted to \$24,053.28. A Budget Committee reported that in view of the pressing demands for extension the expenditures for the forthcoming year could not amount to less than \$60,000, and the Executive Committee reported that the raising of this sum was made feasible by a gift of \$50,000 from the Lasker family, the capital to be held, and the income expended, by the Society; and by a grant of \$26,750 from the Commonwealth Fund, which sums, taken in connection with the existing annual subscriptions, would amount to approximately \$45,000. It recommended, further, that active work towards raising this amount would be at once undertaken, and that since these large gifts form so large a proportion of the income of the Society, this additional \$15,000 should properly be raised by small subscriptions which should, so far as possible, be obtained from benefactors widely distributed over the United States as a whole. It is believed that a reduction of one-third in the mortality of the disease may fairly be expected within a few years as the result of the campaign of education which the Society proposes.

Miscellany.

CANCER DAY.

WORCESTER, FEBRUARY 24, 1922.

THE Mayor of Worcester, Hon. Peter F. Sullivan, appreciating the importance of the opportunity to further the cause of cancer prevention occasioned by the visit of such an eminent authority as Dr. Joseph Colt Bloodgood, was good enough to issue a proclamation to the citizens, calling attention to the prevalence of cancer, the possibilities of greatly lowering the death rate and morbidity by suitable preventive measures, and urging all to inform themselves upon the subject by attending the public meeting.

The Press of Worcester rendered most valuable assistance by assigning capable and well-informed reporters to the work of preparing the numerous articles which they published. The excellent circulars published by the Society for Cancer Control formed the bases for these articles, which were so edited as to give the "local color" which the newspaper men considered necessary.

Dr. Bloodgood arrived in Worcester on the 11 o'clock train and devoted the morning and

early afternoon to a round of the hospitals of Worcester, at each of which he was shown the surgical and laboratory equipments which he studied from the point of view of cancer treatment and study, giving suggestions now and then as to equipment and methods, and at Worcester City Hospital making a brief address to the off-duty nurses in the chapel.

Dr. Homer Gage entertained Dr. Bloodgood at lunch at his home, 8 Chestnut Street.

At 4.30 P.M., a joint meeting of the Worcester District Medical Society, the Worcester Homeopathic Society, and Worcester Dental Society was held in the small ballroom at the Bancroft Hotel, which was crowded to capacity. Dr. Bloodgood lectured upon "Cancer of the Mouth," illustrating both by lantern slides and demonstration of a case, presenting the subject largely from the diagnostic and preventive viewpoint.

At 6.30 P.M., a dinner was tendered Dr. Bloodgood, by Physicians and Dentists, at which the Clergy, Chamber of Commerce, Rotary and Kiwanis Clubs, and the Press were represented, after which the large ballroom at the Hotel Bancroft was thrown open to invited guests and was quickly filled to capacity. A violin *obbligato*, beautifully rendered by Miss Lillian Berkowitz, was quickly followed by the photoplay, "The Reward of Courage," which pleased the audience by the human appeal of its story, which at the same time revealed the economic and social side of the cancer problem. The animated drawing, illustrating the growth and metastasis of cancer, with relative curability at each stage, was most instructive.

After the photoplay, Dr. S. B. Woodward, former President of the Massachusetts Medical Society, and President of the Worcester Chamber of Commerce, welcomed the guests in the name of the associated societies, with clearness and brevity presented the ideal of preventive medicine as the actuating motive of the gathering, and then introduced Dr. Bloodgood, who held the closest attention of the great audience for nearly an hour, showing by lantern slides, anecdote, forceful description and convincing statistics, the seriousness of the cancer problem, the futility of belated effort to cure cancer as contrasted to the success of intervention in the early or precancerous stages. He contrasted the favorable results of recent years since publicity had come to the aid of the doctor, by disseminating information and bringing in the early cases, with the unfortunate results of the most skilful surgery in previous times when most cases came in late.

The Press reports of the actual lecture were on a plane quite equal to the previous notices, and the Committee of Arrangements had the satisfaction of feeling that the word of hope and of timely warning had reached into nearly every home in Worcester and vicinity.

THE ST. LOUIS MEETING OF THE AMERICAN MEDICAL ASSOCIATION.

THE arrangements of the St. Louis profession for the meeting places for the Session of the A. M. A., which is to be held in their city May 22-26 next, are singularly fortunate and convenient; never has the Association been so well favored in this respect. The district in which the meeting is to take place is at the west edge of the business section of the city, easily accessible from all directions, by street cars or otherwise, and not more than fifteen minutes' street-car ride from the most distant hotel. The grouping of the meeting places is so compact that should one walk from the Registration Building (Moolah Temple) to the farthest hall, it can be done in ten minutes or less; from section to section is a matter of from one to five minutes. The convenience of the location and arrangements of the different halls is more outstanding than in any other city in which the Association has met, and a decided improvement over the accommodations which were had at the meeting in St. Louis in 1910.

The Registration Office, Postoffice, and Commercial Exhibit is to be in the Moolah Temple (Shrine), a beautiful and commodious building on Lindell Boulevard, two blocks west of Grand Avenue. At the other extremity of the group is the Odean, the home of the St. Louis Symphony Orchestra, with a main hall which seats better than 2000, and several lesser halls. The main hall will be used for the opening session. Its acoustics are particularly good and suited to our purpose. The Sections on Practice of Medicine and of Diseases of Children meet here. In the Assembly Hall of the same building the Sections on Pharmacology and Therapeutics, and on Pathology and Physiology will meet. (It will be noted that there has been an aim to foregather closely allied sections.) The Sheldon Memorial, a very beautiful new hall on Washington Avenue, one-half block west of Grand Avenue, which most admirably meets all requirements, will be the meeting place of the Sections on Ophthalmology, and Laryngology, Otology and Rhinology. The Section on Surgery, General and Abdominal, and on Obstetrics, Gynecology and Abdominal Surgery, will be held in the Third Baptist Church, on Grand Avenue, a situation well suited to the demands. The Sections on Orthopedics, and Nervous and Mental Diseases will meet in the Law School of the St. Louis University, on Lindell Avenue, a few steps west of Grand. The hall easily seats 500, and is both comfortable and convenient. Dermatology and Syphilis and Urology will use the large Union Methodist Church on Delmar Avenue, just west of Grand, which meets every re-

quirement. The Sections on Gastroenterology, Proctology, and on Preventive Medicine will use the large hall in the Musicians' Club, on Pine Street, east of Grand Avenue, and next to the building of the St. Louis Medical Society, where the House of Delegates will hold its sessions. The Section on Stomatology is assigned to the Assembly Hall of St. Peter's Parish House, one block west of Grand, on Lindell Avenue. Immediately in this district will be found three of St. Louis' most important Clubs—the St. Louis University, and Columbian. Restaurants, catering to every grade of patronage, are numerous in the district, and precautions have been taken to insure that normal rates continue during the meeting.

The St. Louis profession is preparing for an unusual attendance. Hotel reservations are coming in rapidly, but it is purposed that even the late-comer shall be comfortably housed. The wise traveler, however, makes his reservation as early as he finds it possible. Dr. M. B. Clopton, 3525 Pine Street, St. Louis, is Chairman of the Committee on Sections and Section Work.

LEGISLATIVE MATTERS.

THE report of the Special Commission on State Administration was considered by the Committee on State Administration March 15. Although much of the report has to do with financial affairs, there are some sections of great interest to physicians. The purpose of the recommendations is to reduce the number of state departments from twenty to nine, and reorganize the relations of the various boards to departments.

The Commissioner of Public Health, under the proposed changes, would be appointed by the Governor for a term coterminous with that of the Governor, and the four health sanatoria (tuberculosis) would be transferred to the Department of Public Welfare.

One can find no adequate reason for this change, for the problems of tuberculosis are distinctly medical and should be under the supervision of the Health Department. The inference which may be drawn from statements made before the Committee is to the effect that there is lack of uniformity in carrying on details of domestic or business affairs, as shown by those in charge of the sanatoria. In other words, it is claimed that a superintendent should be concerned more largely with the professional problems of those under his care. It seems to be believed that doctors should not be responsible for activities outside of the hospital walls. This is a rather narrow conception of the functions of a medical superintendent,

for many physicians are interested in agriculture, and get good results.

A physician should have a diversity of activities, and if he finds enjoyment in the out-of-door affairs, other than golf or tennis, he may get that relaxation which follows relief from close attention to professional duties. The life of a medical officer in a sanatorium is dreary at times, and his desire to regulate the surroundings of his institution, grow flowers, or raise foodstuffs, may, if encouraged, give him much-needed change.

The powers of the State Department of Health could be extended to advantage, but it seems to be difficult to impress on some people the tremendous value of the trained public health official to the state.

After the demonstration made by the profession in the assistance rendered the Government in the World War, one would expect that physicians would be given greater opportunities for public service. Men interested in financial matters seem, sometimes, to lose the human touch.

The Commission recommends the transfer of the Board of Registration in Medicine, together with other registration boards, to the Department of Public Safety. It has long been felt by many that these boards governing registration of professional men should be in the Department of Public Health or the Department of Education.

THE MIDWIFE BILL.

It is reported that the Committee on Public Health will recommend the passage of the midwife bill. This seems to be the result of influence brought to bear by the medical profession in Springfield. If so, one can ask why physicians want the inadequately educated midwife to take care of obstetric work, and yet seek to restrain the well-educated nurse from performing the same service?

The ordinary, well-trained nurse is better qualified to conduct obstetric cases and discover indications of disease than even the better class of midwives; but if a nurse should enter upon this practice, it is probable that physicians would be united in opposition.

THE NORFOLK DISTRICT MEDICAL SOCIETY.—A regular meeting of the Society will be held at Masonic Temple, 171 Warren St., Roxbury, March 28, 8.15 p. m. Telephone Roxbury 56089. Business: Communication, The Failing Heart, Paul D. White, M.D.; Discussion, William H. Robey, M.D. Refreshments after the meeting. The Censors meet May 4th. Annual Meeting May 9th. C. D. Knowlton, M.D., President; Bradford Kent, M.D., Secretary.

THE MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

REPORTED WEEK ENDING MARCH 11, 1922.

Disease	No. of Cases	Disease	No. of Cases
Anterior poliomyelitis	1	Mumps	140
Chicken-pox	115	Ophthalmia neonatorum	23
Diphtheria	147	Pellagra	1
Dog-bite requiring anti-rabic treatment	4	Pneumonia, lobar..	284
Encephalitis lethargica	7	Scarlet fever.....	249
Epidemic cerebro-spinal meningitis	3	Septic sore throat..	6
German measles...	19	Syphilis	37
Gonorrhea	79	Suppurative conjunctivitis	13
Influenza	521	Trachoma	3
Malaria	2	Tuberculosis, pulmonary	141
Measles	590	Tuberculosis, other forms	21
		Typhoid fever.....	5
		Whooping-cough ...	112

MASSACHUSETTS SOCIETY OF EXAMINING PHYSICIANS.—Dinner and meeting at the Copley Plaza Hotel, Thursday, March 30, 6.30 p. m., \$2.50 a plate. Speakers: Dr. Edward H. Nichols, "The Volstead Act in Relation to Trauma"; Dr. George K. Pratt, "The Volstead Act with Reference to Mental Diseases"; Dr. John Bryant, "Visceroptosis in Relation to Industrial Disability." Discussion opened by Dr. William J. Brickley. Wm. Pearce Coues, Pres.; Hilbert F. Day, Sec'y.

THE RESEARCH CLUB OF THE HARVARD MEDICAL SCHOOL.—The meeting to be held on Friday, March 24th, in the Amphitheatre of Building A, at 12.30 o'clock, will be addressed by Dr. E. E. Tyzzer, on "Black Head" in Turkeys."

BELLEVUE HOSPITAL MEDICAL COLLEGE.—The twenty-fifth anniversary dinner of the Class of '97 will be held at the Hotel Commodore, on Saturday evening, March 25, 1922. Get-together, 7 p. m. Dinner served at 7:30 p. m., sharp. Note change of date from March 20th to March 25th.

MASSACHUSETTS GENERAL HOSPITAL.—The next clinical meeting of the Out-Patient Staff will be held at 12 Noon, on March 29th, in the lower Out-Patient Amphitheatre. Program: Local Anæsthesia, Dr. A. W. Allen; Gummatous Cervical Adenitis, Dr. W. P. Coues; Anaesthesia in the Reduction of Fractures, Dr. G. A. Leland, Jr.; Report on the Sterility Clinic, Dr. A. W. Reggio; Cases of Tendon Surgery, Dr. T. W. Harmer.

MEDICAL REGISTRATION.

Forty-one applicants for medical registration were examined by the board last month. The practical examinations were conducted at the Boston University School of Medicine.

NORMAN FITCH CHANDLER, M.D.

DR. NORMAN F. CHANDLER, for thirty years one of the leading physicians of Medford, died at his home in that city March 6, 1922, at the age of 62. He was born in Mooers, N. Y., April 10, 1859, was a graduate of Harvard Medical School in the class of 1888, serving as house officer at the Massachusetts General Hospital and at the Boston Lying-In Hospital, settling then in practice in Medford. He married Alice Bemis, daughter of the late Dr. C. V. Bemis of Medford. She survives him, as do a daughter and a son, Capt. Norman Bemis Chandler, a graduate of Harvard College in 1917, who saw service overseas in the infantry of the regular army.

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Original Articles.

THE THEORY OF PSYCHOANALYSIS.*

BY JOHN F. W. MEAGHER, M.D., F.A.C.P.,
 BROOKLYN, N. Y.

Neurologist, St. Mary's Hospital; Consulting Neurologist, King's Park State Hospital, etc.

1. Definition
2. The Unconscious
3. The Wish
4. Psychic Energy
5. Repressions
6. The Conflict
7. Technique
8. Transference
9. Dream
10. Symbolism
11. Associations
12. Resistance
13. Sublimation
14. Compensation

Psychoanalysis is a method, employing a special technique, to study the unconscious mental life; to get at the deep, fundamental motives of human thought and conduct. The usual causes given by a patient for a neurosis are generally only rationalizations or excuses. The entire theory is based on the assumption of an unconscious mental state; the need for which Freud discovered in studying psychic repressions.

*Read before the Bay Ridge Medical Society, Nov. 10, 1921; and before the Alumni Association of St. Mary's Hospital, Nov. 21, 1921.

Our unconscious might be described as our whole mental past,—most of which is completely outside the focus of attention. It includes all that we have thought, felt, and willed. Bergson, not an analyst, and the greatest philosopher of the mind of the past century, says that most of our past is unconscious. The unconscious is quite similar in all people,—individual differences lying in the conscious, in the forces of education, culture, morality, judgment, etc. Much of our past (especially our childhood) has been barred from us by culture.

Our unconscious—as is the infant—is egoistic and often asocial, and does not reason. Its sole function is to wish. The unconscious manifests itself consciously in the form of dreams, neurotic symptoms, psychoses, wit, slips of the tongue, etc. It is well known that the unconscious manner of some people has greater effect than their conscious efforts.

Needless to say, it does not annihilate a bad trend to make it conscious; this merely brings it under intelligent and rational control.

One can say that the beginning of the unconscious coincides with the beginning of repressive influences, necessarily exercised in socially training the child.

The unconscious wish is one of the most important elements in the psychoanalytic theory. Dunlap, a severe critic of Freud, admits that Freud's study of the influence of the wish is a great contribution to psychology.

The wish is the unit of mental life in the psychoanalytic theory, as the sensation was of the older academic psychology. We spend much

of our life wishing and working to gratify our wishes.

Unconscious wishes (trends, longings, cravings, ambitions) are usually expressed symbolically. All unconscious wishes are not sexual, though these are very important; there are wishes of hunger, convenience, etc. The reason for the high incidence of sex wishes in dreams, lies in the fact that no other element is so greatly repressed by consciousness. In the dreams of young children, who know nothing of sex in the adult sense,—and whose repressions are chiefly concerning eating—food, especially sweets, occupies a prominent place.

One's will power depends on the strength of one's wish; it may be weak enough merely to phantasy a situation, or strong enough to act vigorously. In animals, the wish (craving) is followed almost immediately by action; in man, where deliberation and judgment enter, there is a delay. We see the wish unconsciously fulfilled in the dream, hallucination, and delusion.

Excessive phantasying interferes with reality. It is the easiest way for one to react and is characteristic of children, hysterics, and to some extent, the aged. It is well known that the symptoms of hysteria represent an unconscious wish, gratified in a symbolic way. The wish of neurotics is followed by childlike imaginations,—these replacing real achievements. Uncorrected abnormal phantasying in a child tends toward unusual character traits in later life.

Energy is the dynamic force of mental life for gratifying or satisfying needs. Though there is some dispute as to its origin (muscle spindles, etc.), this does not prevent our studying its expression (as we do with electricity, ether waves, etc.)

One could leave the phantasies alone, if the energy were bound up in them. But it is not. It is in great part "free-floating," and if it is not utilized, it keeps the patient tense, uncomfortable, or ill. Energy which is fully utilized properly, brings happiness and success. We know that much stored-up energy can be dissipated by means of speech.

It is important to remember that the repression of an unconscious craving does not eliminate the craving. By repression is meant the complete forcing of primitive instincts and aims, without conscious deliberation, into the unconscious; or the prevention (by the agencies of culture) of these becoming conscious at all. Where this is done after conscious deliberation, we call it suppression.

The thoughts repressed are those which are incompatible with adult ideals and ethics. Most people gradually react to the repressions incidental to cultural training in general, so as to respond only to socially approved stimuli. Normal life depends on repression, (effects of conscience). It is protective to the main trends of the individual, *e. g.*, the desire for safety,

power, etc.,—the need for social esteem. We might say that a neurosis represents a partial, and a psychosis a complete failure of repression.

Repression, however, must never be exercised alone. It must go hand in hand with a sublimation of certain interests, thus permitting an outlet for the individual's energy and feelings. Excessive repressions in the parents are reflected in the children; an environmental and not a hereditary sequence. An individual unduly repressed, and living in a narrow, selfish, uncongenial atmosphere, is immeasurably more apt to break down, than one living and working in happy, pleasant surroundings. Numerous absorbing interests act as safety valves. It is evident why rest is useless in many patients suffering from one of the neuroses.

A mental conflict ensues wherever the wish, holding to its infantile demands, is opposed to the patient's conscious desire to be regarded as socially ethical and estimable. For infantile wishes and social demands clash. Social approval is even more necessary in the adult than in the child. Where the unconscious wish is powerful, a neurosis results. The neurosis is thus a by-product of the ordinary civilizing influences (environment, education, religion, etc.) acting on certain types. As a rule, the graver the illness, the stronger is the repressed element, or else the weaker are the cultural trends of the personality. The neurosis or the psychosis comes as a relief; it is really a compromise. For the repressions seeking an outlet, cause the neurotic illness. If you understand the patient's conflicts, you will not be working in the dark, nor depend on mere "confidence" to aid him.

Your first examination of the patient, physical and mental, is important to decide that no organic disease is present. Next decide whether he belongs to the type of cases suitable for analysis by studying his personality make-up. A history only gives you some of the superficial conscious elements concerning the neurosis; often a misleading and distorted story. For the natural tendency is to paint a socially good picture. It is a mistake to think you can bring out everything on the first interview. The patient may be antagonistic to questioning. Go into the patient's fundamental desires and ambitions; and how he meets them; what his most important thoughts and actions are; his conscious worries and conflicts.

It is most important to study the family and environmental relations. Never forget that the picture of the neurosis is colored by the peculiar traits of the individual, and that the causation of the neurosis is invariably bound up to another member of the family,—the latter usually acting as a repressing influence. It is well known that most neuroses show a very definite onset.

Never forget that your attitude must be an objective one. You must be totally unprejudiced if you expect to secure a positive transference

(confidence) from the patient. Without this, analysis is difficult or impossible. The patient must do most of the talking. Early and frequent explanations by the physician are mistakes and are not analyses. It is the patient's deep motives that you are looking for; and your hasty interpretations may be faulty and might jeopardize the analysis. Never ask questions that will cause resentment. Remember, too, that psychoanalysis is primarily a study of the unconscious, and not of sex. Early direct probing along the lines of sex is not desirable.

In making your preliminary physical and mental examination observe carefully all details concerning the patient,—his attitude, mannerism, contradictions, slips of the tongue, symbolic acts, etc.

True, these nervous patients have numerous paraesthesiae, and various symptoms,—subjective chiefly, with only a few objective findings. Complaints in the gastro-intestinal and gynaecological spheres are common. But it shows loose thinking and faulty logic to treat the patient for these metabolic disturbances, and to neglect the problems underlying and really causing the neurosis.

The special technique employed in psychoanalysis consists of dream analysis, free associations and word associations, analysis of symptomatic acts (mannerisms, slips of the tongue, mistakes, etc.); interpreting the meaning of the symbols in the dream and in the symptoms; a study of the resistances of the patient,—internal (love, fear, hate, etc.) and external (money, etc.); and a study of the transference, and whether a positive or a negative one. It might be emphasized that a most important aim of analysis is to uncover a patient's resistances. You are trying to find out what the neurosis accomplishes for the patient, and why this is so.

By transference is meant the projection of the patient's feelings to the physician. It is the only part of psychoanalysis that can be compared to suggestion, with which the rest of the theory has nothing in common. The transference can be positive (confidence), or negative (aversion, distrust). It is the key to the cure by analysis, and is a very difficult part of the method to manage skillfully. Other things being equal, the transference is usually positive to the physician and to the clergyman. The reason for this lies in what White calls the safety motive; the desire for power, and the protection from death or failure (mental, physical, social, sexual, economic); a desire for safety here and hereafter. It is necessary to remember, however, that mere dependence of the patient on the physician is not good; he must be taught adult ways of reacting. The patient needs genuine, not merely sentimental sympathy; and he wants more than a technical interest in his condition. Hurting a patient's feelings will cause a negative transference.

The dream is the mirror of the whole mental past. It has nothing to do with the future. It is the most important element in the analysis, and is the best route for getting at the unconscious, of which it is a pure product. One must learn to analyze dreams in order to practice this method. The dream symbolically represents the unconscious. The dream as recited to you is what is called the manifest content. After interpretations, you get at the latent content—the important phase of the dream, which shows you the real motives in the dream, in which you always notice the fulfillment of a wish. The important latent content is changed by the dream work into the manifest content,—that which the patient remembers. The dream work in its mechanism employs condensation, displacement distortion, symbolism, and lastly, secondary elaboration,—resulting in the dream as made manifest to the patient. The infantile element is the most potent impulse in the formation of dreams.

The dream is really a compromise between the wish and the repressing forces *i.e.*, the disguised fulfillment of a repressed wish. An accumulation of excitement (energy) causes tension or pain; relief of the tension causes pleasure (gratification). The striving for pleasure is the wish.

Much of the manifest content of a dream is worthless,—one of the reasons why it is depreciated by academic psychologists. The strangeness of a dream is due in great part to the condensation.

In the dream, the wish from the unconscious unites with the harmless elements of the fore-conscious part of the psyche,—as incidents of the previous day,—thus hiding the character of the wish.

The mechanism employed in the dream work may be compared to that operative in wit, or in a newspaper cartoon. In the dream, you get the patient to label the symptoms, by the use of freely associating ideas (spontaneously) to each separate part of the dream; just as in the cartoon, the artist labels each separate part of his picture.

By means of dream analysis, you will learn the wishes, conflicts, transferences and resistances of the patient. In the interpreting of symbolic representations, it is always to be remembered that it is the patient's interpretation (by means of free association), and not the analyst's snap judgment that is valuable.

The object of symbolism is to hide the true meaning of dreams and neurotic symptoms. A symbol is anything identified with or used as a substitute for something else. Studying the evolution of language, will give one a rich knowledge of symbolism. The reason that sex symbolism is so frequently found in hallucinations, dreams, etc., is because nothing is so absolutely repressed as sex. Symbols are quite similar in all people, and in all grades of cul-

ture. Whenever repressed trends do enter consciousness, they do so in a compromised symbolic form.

When the patient freely associates his ideas to each separate part of the dream, certain repressed material is thus brought to light, and noticeably important emotional reactions, etc., indicate the value of this material. This may reach far back into childhood. It might be said here that Jung and the Swiss School pay more attention to the present conflicts, claiming that early events and phantasies only determine the character traits, and not the neurosis.

It is well known, of course, that ordinary speech is often used to conceal rather than to tell what one really feels and thinks. A patient's explanation of the etiology of his neurosis is usually only an excuse to satisfy or to please himself. The physician must not be misled by these explanations.

The "word association test" was devised by Jung, and is much used by the Swiss School. Freud, however, does not think this test indispensable to psychoanalysis. A list of one hundred indifferent words are given to the patient, he responding to each by the first word occurring to him. The reacting word, the time, any emotional accompaniment, etc., are noted. Those bringing out positive results are called complex indicators, and are supposed to tap something disagreeable in the unconscious. As a matter of general information, one can say that the most frequent association to any word is its opposite,—as good to bad, black to white, etc.

Where two different ideas are connected by a superficial association (as a slight similarity in color, form, noise, etc.), they are also connected by a deeper and a more significant association.

Probably the most important aim of psychoanalysis is to dispel the patient's resistances. Resistance implies the continuation of the repressive influences against exploring the unconscious. So resistance is the repressing force which prevents the return to consciousness of the repressed elements. External resistances (financial, racial, etc.) are not nearly as important as internal ones (fear, love, hate, etc.).

Resistance will produce the opposite effect of a positive transference. The patient has to eventually see himself as he really is. If you cannot get the patient to overcome his resistances, you cannot analyze him. Needless to say, the patient is not cured, merely by learning the meaning of his symbolized symptoms.

Your object in analyzing the patient is to direct the energy which is being wasted by asocial cravings, into socially approved channels,—the latter furnishing good outlets for this energy. This we call "sublimation." Sublimation is a word borrowed from chemistry, and means to free or purify from base qualities. The process is an unconscious one, though the means

are conscious (*e.g.*, religion, art, music, children, friends, etc.). Sublimation cannot be forced. The patient has to overcome his own resistances; that is, he wins not by undue repression, but by sublimation. This latter ability depends on the strength of his socialized character traits, inculcated in early childhood.

Where the patient feels that he is being persecuted, or that he is useless, etc., sublimation becomes difficult, because of the absence of feeling. In severe cases, where the patient can make no attempt at sublimation, deterioration is very apt to result.

For the student of character traits, a very interesting and valuable psychological mechanism is that of compensation. Psychic compensation might be compared to physiological compensation in organic disease. Failure of the one causes psychic death; of the other, physical death.

All people compensate, more or less, for their shortcomings and inferiorities; they do, at any rate, when these cause fear or anxiety. They may even over-compensate, that is, swing too far in the opposite direction, in their attempt to gain personal or social security. Thus, reacting to an indifferent situation prudishly and with great hate may be an over-compensation against the individual's own sexuality. It is a well known psychological fact that an unconscious tendency is often consciously expressed by its opposite tendency (over-compensation).

The value of this compensatory mechanism in the study of character rests on your ability to decide whether an important and dominant trait of the individual is real and fundamental, or whether it is only a compensation, or an over-compensation. Thus gentility may be a fundamental trait, or it may be a compensation to cover a weak spot. A genial manner can hide a feeling of hatred.

Before concluding this brief description of the theory of psychoanalysis, I would like to say this,—that these patients must be studied without prejudice, and with a sincere desire to help them. Superficially, they are often difficult to understand. Our old methods of study gave us little insight into their difficulties, whereas psychoanalysis enables us to get a better idea of their problems. You can help them to use their good character traits, and recommend good social outlets for their energies. In this way you help to diminish their asocial cravings. Rest often aggravates the neurosis—particularly if it permits of no outlet for pent-up feelings. And for the patient merely to fight his feelings and his symptoms, this uses up his energy and results in one of the prominent symptoms of the neurosis,—fatigue; or else, increases his already excessive tension.

Probably one of the most important things to remember is that it is not merely the patient's story that you are after, but rather,—when you come to know his real mental status—how you

can enable him to utilize the energy being wasted by the neurosis, (fatigue or hypertension).

Psychoanalysis is a comparatively new medical method. It has its dangers, and its practice by the laity should not be permitted. The genuine student must not be confounded with the irresponsible dilettanti. As I have said before, the method is not primarily one to study sex, but one to study the unconscious mental life. For those who would criticize the method, an attack on the theory of an "unconscious" state must be their chief point of attack. But the method, as a valuable medical study, has come to stay. As William Healy, the distinguished psychopathologist of Boston, has said, practically nothing of scientific value has been written against the method in the past ten years.

ACHYLIA GASTRICA.*

By LOUIS FISCHBEIN, M.D., BOSTON.

[From the Medical Clinic of the Boston Dispensary.]

PRIMARY *achylia gastrica* does not at present occupy the prominent position in the pathology of the digestive tract that it did a few decades ago. It is only occasionally that references to it are found in medical literature or that it forms the subject of discussion at medical gatherings, as clinicians and research workers nowadays focus their attention upon those gastric disturbances characterized by definite lesions in the walls of the stomach or duodenum. But *achylia gastrica*, while certainly of less significance than the diseases with definite anatomic lesions, is nevertheless of considerable interest and importance. We know that it is of more frequent occurrence than was formerly thought, and there is yet considerable vagueness among physicians as to its proper definition, as well as to its etiology and pathogenesis.

Many German and American authors, for instance, Boas, Matthes, Penzold, Austin, Bassler, and Einhorn, restrict the term *achylia* to a condition in which both acids and ferments are absent from the gastric contents after the usual test meal; cases in which the ferments are present and the HCl alone is absent are classified by these authors as anacidity or anachlorhydria. Other authors, like Leo, Strumpell, and Lockwood, speak of *achylia* and *hypochylia* when the HCl alone is absent or diminished, so that in a perusal of the literature, it is not always clear what kind of *achylia* the author has in mind. Besides, none of the authors, to my knowledge, except Albu and Martius, have laid any special emphasis upon the

disturbance of motility, which, according to my observation, is constantly present in cases of *achylia*, constituting one of its most prominent characteristics.

In a careful study of a series of thirty cases of primary *achylia*, gastric hypermotility was found in every instance. After considerable straining and retching on the part of the patient, not more than 10 to 15 cc. of gastric contents could be obtained, consisting of a thick, practically neutral liquid with an admixture of mucus from the throat, in which were suspended a few poorly digested crumbs of bread used in the test meal. The acids and the ferments were either entirely absent, or, as in a few cases, present in small traces, and the total acidity was from 0-15; in the majority of cases, below 10. The appearance of the gastric contents in all these cases was so characteristic that a glance was sufficient to anticipate the diagnosis.

That the small quantity of the gastric contents and the difficulty with which they were obtained were due to an actual hypermotility and not to a plugging of the stomach tube by large particles of food, or to some other obstacle, was proven by the fact that lavage of the stomach in a few cases after the extraction of the test meal, did not alter the results. Only a few more crumbs could be obtained and the water returned practically clear. In a few cases these findings were confirmed by fluoroscopic examination, and in a few others by repeated examinations with the stomach tube, at various intervals. Nor were the results different when the stomach contents were extracted after half an hour, instead of the usual one hour.

Considering the uniformity of the results in this series of cases, it can safely be affirmed that hypermotility is a constant and distinguishing feature of *achylia*, so we must conclude that in *achylia* there is not only a disturbance in secretion, but a disturbance in motility as well. In anachlorhydria, the motility is either normal or impaired, —usually impaired, as evidenced by the large quantity of gastric contents, and especially of the sediments. Under the fluoroscope the peristaltic waves, in cases of anachlorhydria, are rather weak, and do not start till twenty to thirty minutes after the ingestion of the barium meal: the stomach, however, is empty after six hours. It is stated in all the leading textbooks on diseases of the stomach that the motility in *achylia* is usually normal, though impaired in some cases, and even increased in others. This statement is true, in a way, as the normal or impaired motility undoubtedly refers to cases of anachlorhydria which they classify with *achylia*.

The combined HCl, as estimated by the total acidity, is either entirely absent or present

**Achylia*, as found in cancer, pernicious anemia and other wasting diseases, is, of course, secondary and is, therefore, excluded from this discussion.

only in traces in *achylia*, but is found in appreciable quantity in anachlorhydria, as the total acidity is from 0-10 in the former, and from about 20-40 in the latter. Anachlorhydria is a fairly common condition, while *achylia* is comparatively rare. In a routine examination of the stomach contents of all patients with gastric disturbance, it is only now and then that true *achylia* is encountered. While the difference between these two conditions is, in my opinion, of little practical importance, it cannot be ignored, because it corresponds to the actual findings in the stomach, and because a different etiology has been assumed for each of these conditions.

Primary *achylia*, in the sense in which the term is here used, is found almost exclusively in neurotics. It occurs more often in men than in women, and is more common in young adults and in the middle-aged than in the elderly. The reason for its rare occurrence in the elderly is, perhaps, that gastric disturbances, without anatomical lesions in the stomach, are infrequent among old people.

The symptoms found associated with *achylia* are manifold, and can be divided into three groups.

I. Here the patients complain of the ordinary symptoms of indigestion, such as fullness or distress in the gastric or abdominal region coming on immediately or shortly after meals, dryness of the lips and tongue, and a disagreeable taste in the mouth. In some cases there is, immediately after meals, a considerable distention of the abdomen, a feeling of fullness and pressure in the chest, embarrassing the respiration and constituting the so-called *asthma dispepticum* or *pneumatosis*. Constipation is usually present, although some patients have normal bowel functions, but the so-called *gastrogenic diarrhoea*, insisted by so many authors, was not noted in a single instance.

II. The symptoms in this group are more pronounced, and are, in some cases, so serious as to simulate some organic affection within the abdomen. They consist of lancinating pains, or of painful pressure in the region of the stomach, radiating to the sides and back. These pains appear a few hours after meals and are accompanied by nausea and, at times, by vomiting, which usually gives relief. One patient, a woman of about 38 years, presented almost typical symptoms of gastric ulcer. She was under observation for about two weeks in a public institution, where numerous x-ray examinations were made, with negative results. She refused an exploratory laparotomy, and was finally seen at the Boston Dispensary Clinic, where a diagnosis was made of *neurosis* and *achylia*. She was treated accordingly, with the result that her pains and vomiting disappeared, except during her menstrual period, when they reappeared, but in a much milder

form. Another patient, a woman of 52, had for years, at frequent intervals, attacks of abdominal pain, accompanied by large, soft, non-diarrhoeic movements. These pains alternated with what might be called a vasomotor rhinitis consisting of an irritation in the nostrils, causing her to blow the nose incessantly for hours at a time, and persisting in spite of all sorts of local medical and surgical treatment. She finally had her abdomen explored and her appendix removed, but the pains and nasal symptoms still remain.

III. The stomach symptoms in this group are rather few and insignificant, while symptoms pertaining to the general nervous system are numerous and pronounced. One patient, a man of 36, complained of dizziness, of a sensation of tightness around the head which he experienced mostly before meals, of poor sleep, and general fatigue. He attributed his disagreeable sensations to constipation, which he considered to be the cause of all bodily and mental ills. On close questioning, it was found that he had regular daily evacuations, which he, however, considered insufficient, as he felt that "his bowels did not act as they should." Another patient, a woman of 49, complained of fullness in the stomach after a heavy meal, and of irregular bowel movements, but her dominant symptoms were "an all-gone feeling" several times a day, insomnia, and a vasomotor disturbance akin to *angioneurotic edema*. At intervals of a week or two, she suddenly experienced a sensation of heat and tension in the face, followed by redness and swelling, lasting for 18-24 hours. A gastric analysis was made, because the patient was told, and believed that "her troubles were due to indigestion." On objective examination, abdominal distention, with some tenderness, is found in a number of these cases. The abdomen, however, is soft, the tenderness superficial, and rarely found twice in the same place, so that it can be easily differentiated from tenderness due to an inflammatory process. But all these symptoms are merely associated with *achylia*, and are by no means typical of that condition; and the diagnosis rests entirely upon the examination of the stomach contents after a test meal. In some cases, traces of free HCl were found, but with the hypermotility and the other features of the gastric secretion these cases were classified as *achylia*. It does not seem probable that a mere trace of HCl would in any manner alter the digestive power of the gastric juice.

Tests for the pro-ferments and a quantitative determination of the ferments were omitted in all cases, as the results of the investigations of Hammerschlag and Oppler as to the parallelism between the secretion of HCl and ferments have not been successfully disproved. It might be true that some secretion of ferments still takes place when the secretion of

HCl has entirely ceased, but traces of ferments have no more practical significance than traces of HCl. In three cases a test for rennin was made according to the method of Martius. The patients were given a cupful of milk on an empty stomach, followed fifteen minutes later by the introduction of the stomach tube. With a normal ferment content, the stomach tube is, after ten minutes, filled with large curds, but no curds were found in the three patients thus tested. After fifty minutes, a few very fine curds were found, and the milk seems to have left the stomach before it had time to coagulate. It might be added that a test for rennin is, perhaps, a test for pepsin, as the identity of these ferments is still insisted upon by some physiologists. The fractional method of Reh-fuss was not employed in the analysis of the stomach contents, because, in my opinion, it is inferior, for clinical purposes, to the older methods in vogue. The total quantity of stomach contents as obtained by expression, the appearance of the sediment, the quantitative relation between the liquid and the solids, are all, in some cases, of great importance. But they are, in my opinion, more easily and more thoroughly determined by the older methods than by that of Reh-fuss. Besides, all our knowledge of the functional activity of the stomach, especially in *achylia*, has been gained by use of the older methods, which are still regarded as sufficient and reliable by many clinicians.

ETIOLOGY AND PATHOGENESIS.

The development of our knowledge of *achylia* is intimately connected with the history of chronic atrophic gastritis. Fenwick's report of his cases of pernicious anemia in which post-mortem examinations showed atrophy of the secreting glands of the stomach, was followed by a report of cases by Ewald. Noth-nagel, and others, confirming Fenwick's observation as to the occurrence and seriousness of atrophic gastritis. But the functional methods of examining the stomach now in vogue were then unknown, and the recognition of the disease *intra vitam* was thought impossible. When, however, with the introduction of the functional test, cases were found with no gastric secretion, the natural conclusion was that this condition must be due to an atrophy of the secreting glands of the stomach, and the diagnosis of atrophic gastritis was thus clinically established.

No post-mortem examination was ever made in these cases, as none died during the supposed gastritis, but considering the rôle that the secretion of HCl always played in the physiology of digestion, the conclusion seemed justifiable that the absence of gastric secretion was necessarily due to profound structural changes in the stomach, and was, therefore, of grave import. A change of view, however, as to the fatal prognosis of atrophic gastritis, was

brought about by the report of a case by Einhorn, followed by the report of several cases by Martius, disproving the grave prognosis of the affection. In Einhorn's case, the secretion returned after being absent three years, while Martius' patients enjoyed good health in spite of their lack of secretion.

It thus became evident that these patients could not have suffered from so-called atrophic gastritis, and Einhorn proposed the term *achylia* to designate the actual condition, regardless of its underlying cause. The term has been universally accepted, and clinicians have since divided primary *achylia* into (1) nervous, and (2) organic. Some authorities, as Boas, Knud Faber, and their co-workers, insist that all cases of *achylia* are organic and due to gastritis, simple or atrophic. But the existence of primary chronic gastritis, whether simple or atrophic, has never yet been satisfactorily established, although considerable space is devoted to its description in textbooks. Hayem, for instance, devotes numerous pages to the pathology of the different forms of gastritis, with many beautiful illustrations of their pathologic histology, but he is entirely vague and loses himself in generalities as to the clinical recognition of any of its forms. The diagnosis of chronic gastritis, according to Hayem, rests upon the finding of leucocytes and degenerated epithelial cells after lavage of the stomach! Other authors are even more vague, as they content themselves with an enumeration of symptoms present in any disarrangement of the gastrointestinal tract as characteristic of chronic gastritis.

Analogous with catarrhal conditions elsewhere, the presence of gastric mucus in the stomach contents would be indicative of gastritis, although it must be admitted that mucus in the stomach has not the same significance as elsewhere, because the stomach, according to many observers, secretes mucus under normal conditions. The mucus secreted normally is, however, small in quantity, of short duration, and disappears with the cessation of the irritating cause; while mucus found in inflammation of the stomach, as in cases of pernicious anemia, is constant, and forms a thick covering over the entire surface of the mucous membrane, so that the presence of gastric mucus in the stomach contents would be a strong presumption of chronic gastritis. However, in an examination of an extensive series of patients with gastric disturbance, gastric mucus was never found.

Structural changes found by microscopic examination of pieces of gastric mucous membrane obtained *in vivo* are, in the opinion of many pathologists, no indication of gastritis, as these changes might be normally brought about by the process of digestion, and also because the structure of the mucous membrane varies in the different regions of the stomach. There is

yet no unanimity of opinion among anatomists as to the normal histology of the human stomach, so that certain structural changes which are classified by some anatomists as pathologic are regarded by others as normal. All writers agree that inflammatory processes in the stomach are mostly at the pylorus; but the epithelial degeneration, the mitosis, the lymphoid infiltration which are looked upon by some pathologists as evidence of inflammation, are considered by others as belonging to the normal histology of that region. Moreover, primary gastritis, according to many pathologists, is practically never found at autopsies; so that the existence of primary chronic gastritis, whether simple or atrophic, is, in my opinion, a myth resting upon tradition and not upon accurate anatomical or clinical observation. Chronic gastritis found in alcoholism or in other forms of chronic intoxications, is not primary, and has no bearing upon the subject under consideration.

Neither is *achylia* due to primary cell atrophy in consequence of some local infection, as maintained by Bassler, as his observations were made upon pieces of gastric mucous membrane obtained *in vivo*, which, as stated above, are no indication of any pathologic changes in the stomach. Besides, primary cell atrophy, even if it does exist, need not involve all the secretory cells, and thus give rise to *achylia*.

Achylia, in my opinion, is a gastric neurosis.* It is like hyperacidity and hypersecretion, either a symptom or a part and parcel of a general neurosis. Practically all the patients with *achylia*, under my observation, were pronounced neurotics, the majority of them being in the prime of life and in good physical condition, with no history of antecedent infection, intoxication, or other illness, to which their gastric disturbances could be attributed. In some the local, as well as the general, symptoms disappeared under treatment; in others, the local symptoms disappeared, while the general symptoms persisted. Some, after getting rid of their digestive disturbance, complained of headache, dizziness, or a feeling of faintness, so that there could be no doubt as to the nervous nature of the affection. Furthermore, the disappearance of the local symptoms and their replacement by general symptoms, or the persistence of the latter in spite of the disappearance of the former, is, to my mind, conclusive evidence that *achylia*, as well as the other functional gastric disturbances, is the result, and not the cause, of the general neurosis. In other words, a person is not a neurotic because he is a dyspeptic, but he is a dyspeptic because he is a neurotic.

A general nervous disorder, irrespective of its cause, manifests itself in a number of subjective and, in some cases, objective symptoms; the former are headache, vertigo, insomnia, general fatigue, etc.; the latter are the exag-

gerated knee-jerk, the false ankle clonus, the extra systoles, etc. It is the same in the nervous dyspepsias. The complaints are the subjective symptoms, while the disturbances in secretion and motility are the objective signs, and unless there be an anatomic lesion, there are no intestinal invalids, but nervous invalids in whom intestinal symptoms predominate.

Neither could the symptoms associated with *achylia* be due to chronic appendicitis, cholecystitis or other chronic inflammation within the abdomen. In some of the patients in this series, the gall-bladder or appendix was suspected and removed without, however, removing the symptoms. In others, there was nothing in the history, physical examination, or symptoms remotely to suggest a chronic inflammation of the gall-bladder or appendix. Besides, the importance of a chronically inflamed appendix or gall-bladder as a cause of vague gastrointestinal disturbances is, in my opinion, grossly exaggerated; and, excluding ulcer, carcinoma, and other organic diseases, it can be said that 90 per cent. of gastric disturbances are due, not to chronic appendicitis, cholecystitis, or to any other abdominal affection, but solely to the ebb and flow of the emotional life.

The influence of mental and emotional states, as demonstrated by Pavlov in the animals, has recently been proven by Heyer to be true also in man. The details of Heyer's experiments are to be found in the *Archiv für Verdauungskrankheiten*, and only a few of the findings can here be mentioned. As in Pavlov's dog, different foodstuffs had different effects upon the gastric secretions in Heyer's hypnotized man. After the ingestion of beef broth, there was a sudden rise in the curve of gastric secretion, followed, after a short interval, by a sudden fall; while after the ingestion of milk, the rise was gradual, did not reach the same height, and was followed by a gradual fall. But what could not be demonstrated by Pavlov on the dog, but was demonstrated by Heyer on man, was, that the mere suggestion of the foodstuffs had the same effects upon the functions of the stomach as their actual ingestion. There was the same sudden rise and fall of the secretory curve after the suggestion of beef broth, and the same gradual rise and fall after the suggestion of milk. Heyer also brought out in these experiments among others, that suggestions of a pleasurable nature slightly raise the curve of gastric secretion, while suggestions of a depressing nature depressed the curve, and that there is no necessary relation between hypersecretion and hyperacidity. I have observed this clinically and also that there is a parallelism between the secretion of acids and ferments. The latter is of special importance in connection with *achylia*, as the authors who distinguish between anachlorhydria and *achylia*, regarding one as functional and the other as

*See footnote, page 413.

organic, make the distinction solely on the absence of the ferments in the former, and their presence in the latter.

These experiments show that emotional states are followed by actual physiological and chemical changes; but why these changes should, in some cases, give rise to a hyperacidity or hypersecretion, and in other cases to anachlorhydria or *achylia*, is not known, and can only be surmised in analogy with nervous disturbances elsewhere. Nervous disturbances, while emotional in their etiology, are, after all, somatic in their effects, and the symptoms they give rise to are not imaginary, but real, produced or accompanied by actual physiological changes. It is only necessary to mention, for example, the flushing of the face from embarrassment, its pallor in fear, the trembling of the limbs in anger, the cessation or initiation of the menstrual flow in consequence of a fright, or any other painful emotion. In all these cases, however, the physiological disturbances are of short duration, of infrequent occurrence, and easily adjustable. In other cases, as in the nervous dyspepsias, the physiological disturbances may be of more frequent occurrence, of longer duration, not easily adjustable, and thus may even remain, in some cases, permanent. It is Biswanger who divides the neuroses into (1) those which are adjustable, and (2) those which are not adjustable ("*ausgleichbar und nicht ausgleichbar*"). Neurasthenia is to him an example of the former, and epilepsy of the latter. The same, with some modification, might be true of *achylia* and the other disturbances of gastric secretion and motility. *Achylia* and other functional gastric disturbances might be classified with the neuroses non-easily adjustable.

Albu believes that *achylia* is congenital or constitutional as he has observed it in thirty-one children, all under 10 years. These children were all anemic, poorly developed, with no history of gastrointestinal disturbance in infancy, and no antecedent infection which could possibly account for their *achylia*. These observations of Albu are, to my mind, additional evidence as to the nervous nature of *achylia*, as a congenital absence of an almost universal function cannot be explained on the theory that a function disappears when it is of no more use to the organism. A congenital defect of that kind is rather an indication of a constitutional disturbance, perhaps a constitutional neurasthenia, although it is not assumed that all cases of *achylia* are due to constitutional neurasthenia. As to the rôle of the endocrines in the etiology of the functional disturbances of the stomach, next to nothing is known, and terms such as adrentrope, pituitrope, and thyrotrope in connection with gastric disturbances are at present only high-sounding names, without real significance.

TREATMENT.

The treatment of *achylia* is general, dietetic, and medicinal. These measures are not mentioned in the order of their importance; they are all essential to the successful management of these cases. The general treatment comprises a variety of methods, of which psychotherapy is the most important. The term psychotherapy is here used in the widest sense, and includes, besides persuasion and encouragement, rest, recreation and physical exercise—measures which, while beneficial in themselves, owe a great deal of their importance to the psychic element which they contain, and which I believe to be a great factor in obtaining the desired results. The manner of life of the patient is carefully investigated; if he is overworked and worn out, rest and a change of environment are desirable. If these measures are not possible on account of economic or financial conditions, the patient is helped so to adjust his work as to give him some time for rest and recreation, suitable to his temperament and environment, at home. If, on the other hand, his occupation obliges him to lead a more or less sedentary life, gymnastic exercises, not at home, but in class in a public gymnasium, will be found of the greatest possible help. The psychic element in all these measures is apparent, especially in the gymnastic exercises, as the healthful atmosphere prevalent in a public gymnasium, the spirit of cheerfulness, the enthusiasm, the belief that these exercises will expand the chest and develop the muscles, are all as beneficial as are the exercises *per se*. (It may be added that the practice of psychotherapy does not necessarily presuppose an expert knowledge of psychology, provided that the physician has a sympathetic understanding and fully recognizes the nervous nature of the affection of which the patient complains.)

DIET.

This is very simple and is based upon the hyperesthesia of the stomach which I believe to be the immediate cause of the gastric symptoms. It is a mixed diet from which those foods alone are excluded which, by their chemical or mechanical action, might cause irritation and distention of the stomach. Such a diet consists of bread and butter, well-cooked cereals, lean fish baked or broiled, lean meats broiled or roasted, cooked vegetables in puree form, including potatoes; simple puddings made with butter, baked, cooked or stewed fruits, light coffee or tea with milk. All fried foods, all smoked and salted meats and fish, pastries, spices, raw fruits, raw vegetables, and salads are excluded. Raw milk, heavy cream, and thin soups of any kind cause distention of the stomach, and are not as well borne as solid foods properly pre-

pared. Regularity in the hours of eating is insisted upon, and the meals are limited to three a day. The diet as here outlined is nourishing, easily digested, and relished by those patients especially who have lived for months on soups and semi-solids.

MEDICINAL.

There seem to be varieties of medical experiences, as there are varieties of religious experiences. Dilute hydrochloric acid, which has been highly recommended by almost all authors as the drug par excellence in *achylia*, has been found, in my experience, to be not only of no benefit whatever, but, in some cases, even to aggravate the dyspeptic symptoms. And yet, nowhere in therapeutics do the indications for a drug rest upon more rational grounds than the indication for HCl in *achylia*. It seems that HCl, in spite of its importance in aiding the chymification of the food and exerting an antiseptic action upon the stomach, is not necessary for digestion. In experiments on metabolism made by Von Noorden, no difference was found, as to digestion or assimilation, between patients with *achylia* and patients with normal stomach functions, and these experiments are completely confirmed by clinical observation. One male patient who has been under observation for about ten years, is still in excellent physical condition, although no trace of HCl has been found in his stomach in numerous examinations at various intervals. Many authors insist upon the vulnerability of the gastric mucous membrane, and upon its liability to small hemorrhages, on account of the absence of the antiseptic action of the gastric juice. It is true that small hemorrhages are not rare in *achylia*, but it is questionable whether they come from the stomach, as they are often found in cases of normal or hyperacidity when the difficulties attending the extraction of the stomach contents are the same as in *achylia*. Neither have I seen any benefit from *nux vomica*, *tr. einchinae comp.*, and the other so-called stomachics. These drugs are recommended in many gastric disturbances because they increase or stimulate gastric secretion; but it is a fact that in the majority of cases of stomach disorders there is plenty of secretion, and even when the secretion happens to be absent, as in *achylia*, these drugs are unnecessary, as the patients seem to get along very well without gastric secretions.

On the other hand, drugs like the bromides, chloral hydrate 0.1-0.15 per dose, ext. of valerian, and *tr. opii gtt 2-3* per dose, have been found of decided benefit in *achylia*. They act as sedatives to the stomach as well as to the general nervous system, and their beneficial effects are an additional proof that primary *achylia* is either a symptom or a part and parcel of a general neurosis.

While the plan of treatment, as here outlined, has been successful in the majority of cases, a few patients, either rebellious to suggestion or constitutional neurasthenics, did not show the desired improvement. It is true here, as in other types of neurosis, that, as Boas says, the last physician whom the patient consults holds the trump card in his hand.

SUMMARY.

1. *Achylia gastrica* is a type of functional indigestion characterized by an absence of secretions combined with hypermotility.
2. It is found almost exclusively in neurotics, and, in some cases, the dominant symptoms of the neurasthenic may overshadow the underlying indigestion.
3. The digestive disturbance is the result and not the cause of the general neurosis.
4. The treatment is general (psychotherapy), dietetic, and medicinal.

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THE EXTRACTION OF NON-MAGNETIC FOREIGN BODIES FROM THE ANTERIOR CHAMBER OF THE EYE.

By WILLIAM F. O'REILLY, M.D., F.A.C.S., LYNN, MASS.

It is claimed by statistics that from 20% to 25% of all foreign bodies entering the eye find lodgment in the anterior chamber.

With the exception of the lens, no other part of the eye tolerates a foreign body as well as the anterior chamber. Therefore, one may relatively take more deliberate time in its removal. In the presence of blood, we should not delay the localization and removal of a piece of iron or steel; but we may with considerable safety await the absorption of the blood before trying to locate and remove a non-magnetic foreign body. In both classes, siderosis of iris and infection should not be disregarded.

As the removal of magnetic bodies lies within the province of the magnet, it is not the object of this paper to touch upon them, but to confine its scope to those of the non-magnetic type. Of the latter, too numerous to tabulate, the most common organic and inorganic foreign bodies finding lodgment in the anterior chamber may be noted, viz: Copper, glass, wood, stone, paper, lead, gunpowder, zinc, earth, ivory, carbon, bark, coal, cilia, brass, clothing, bone, celluloid, cement, lime, slate, etc.

Patients of this type are a common occurrence to the average ophthalmologist located in an industrial centre, and are often met by him with considerable nonchalance, but dispatched with considerable chagrin when he contemplates the immediate difficulties he has experienced in what seemed to be a very easy removal.

The anterior chamber may be filled or reformed, partly or completely empty, with partial or complete hyphemia, and the corneal wound even in a fresh case difficult to find. The majority of my cases showed a fairly well-filled anterior chamber with very little blood, fibrin and exudate—no case being older than seventy-two hours.

Were it not for the iris, which invariably plays an important part in these cases, the operator would have no misgivings, and all extraction technique would be reduced to a simplicity, but the anatomy and physiology of the iris and the ready lodgment of the foreign body on or in it, taxes the skill of the surgeon to the utmost. In a few instances the delicate markings of the iris, indistinguishable to the naked eye, with the aid of a good direct or indirect light enhanced by binocular or stereoscopic loupe, obscure a minute body even with a contracted pupil, making the use of the Roentgen rays indispensable. The large and small iris crypts often engulf or tenaciously claim the invader of the eye, and traumatic reaction and swelling adds to the process, and hopes entertained by contraction and dilation of the pupil by eserine and atropine are often defeated as a result of the action of the iris dilator and sphincter. In such cases, all other means of removal being futile,—that part of iris engaging the foreign body must be removed, that is, an iridectomy becomes a necessity.

But an iridectomy is destructive surgery, and in these cases, conservative surgery is paramount. Text books advise the removal of foreign bodies in the anterior chamber and iris by the use of forceps inserted through a keratotomy

wound lying close down to the iridic angle, eliminating a posterior lip. To a keratotomy no exception can be taken, but to the forceps no matter how ingeniously constricted or deftly manipulated, the exceptions are obvious. For example, a particle of coal or gunpowder may break into a dozen smaller fragments with the most delicate two finger forceps grasp, a small hard body fly away; or, most common of all, the body not engaged alone, but considerable iris tissue entangled in the forceps bite, making an iridectomy obligatory.

To overcome these embarrassments and consequent complications, I have been using the following method. A two inch strand of horse hair, fine or coarse as conditions indicate, is looped and free ends inserted into an ordinary dental broach holder. The loop of hair is sized and moulded and bent to suit the individual case. The usual low non-posterior lip keratotomy is made nearest the foreign body. The incision should be small, just enabling the loop to enter chamber (loop contracts in incision, expanding after entrance into chamber and chamber does not empty) and loop passed over foreign body, encircling it. Distal end of loop is depressed and foreign body gradually drawn toward corneal opening. Several engagements of the body by the loop may be necessary before the body reaches the chamber angle. It may be drawn out immediately, or if large or irregular or rough incision may be enlarged and object looped again from its position at angle. Ofttimes a little flow of aqueous humor aids the procedure. Irregular and rough bodies engaged in iris and tilted toward or away from entrance incision may be pushed or pulled from their anchorage before or after looping, respectively. Objects more firmly imbedded may be pried out by bending or fashioning distal portion of loop as conditions demand. In short, the instrument is made and remade to suit the case and the conditions that arise in the extraction of the foreign body. Slight losses of aqueous occasioned by repeated insertions are readily remade in the intervals. Aseptic procedure, cocaine anesthesia, usual post-operative measures are used.

The advantages of this comparatively simple operation are:

1. Ability to work in filled anterior chamber.
2. No disturbance of anterior limiting layer of cells of iris.
3. No entanglement of iris.
4. Absence of operative hemorrhage.
5. Minimum post-operative reaction.
6. No undue pressure on intraocular contents.
7. An inexpensive adaptable instrument.

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Medical Progress.

PROGRESS IN GYNECOLOGY.

By STEPHEN RUSHMORE, M.D., BOSTON.

CANCER OF THE UTERUS AND RADIUM.

FRANKL AND AMREICH¹ report the results of a careful study of the histological change in cancer following the application of x-ray and of radium.

The first changes are evident on the third and fourth days: the greatest effect was noted between the fifth and seventh days: and the rays were no longer effective after the fortieth day. Following indirect radiation, the changes appeared more slowly, and the effect wore off sooner.

Comparing the results obtained from x-ray treatment and radium therapy, they found the same histological changes: first, edema, then enlargement of the cells and the carcinoma nest penetration of lymphocytes, vacuolization, and other changes found after such treatment. On the whole, they found that the changes took place sooner after treatment with x-ray than with radium.

These facts induce them to advise the use of x-ray in treating the parametrium and the glands, while the use of radium is preferable in treatment of the carcinomatous crater.

Burnam², working with Kelly and other associates, has had the benefit of a relatively large quantity of radium and years of experience, and a considerable number of patients. His conclusions are, therefore, especially likely to carry weight.

He notes the results in three general classes of pelvic cancer in women,—of the vagina, of the body of the uterus, and of the cervix of the uterus. Cancer of the vagina is practically incurable by operation—about one to two per cent. of cures. In 129 cases treated by radium, there were 15 complete cures, four for more than five years, and one for nearly nine years.

Cancer of the body of the uterus is not in general suitable for radiation, so that if the growth seems eradicable (a fairly high percentage), operation is preferable. Nevertheless, in cases where operation is inadvisable, radium has given marked relief of symptoms, and sometimes apparent (temporary) cure.

In some cases there has been complete histological demonstration that radium can cure cancer of the body of the uterus, where the uterus has been removed after preliminary treatment with radium.

On account of the much greater frequency of cancer of the cervix, it is the most important group. Three classes are generally recognized—operable, border-line, inoperable.

"Taking our experiences as a whole, the following results have been obtained in cancer of the cervix:

	Cures.
Radiation alone—operable cases.....	50%
Radiation preliminary to operation—operable cases	46%
Radiation prophylactic after operation.....	43%
Radiation in border line.....	31%
Radiation in inoperable.....	9%
Radiation in recurrent inoperable.....	11%

"In considering the relative values of surgical and radium methods, there is possible competition only in sub-group 1, the operable cancers." (Burnam does not state the test of cure in the above series.)

"Of 200 border-line cases treated by radium over five years ago, thirty are still living and free from all evidence of the disease, and in one case the cure has been for eleven years."

"It is true that the anatomical structure and position of the cervix permits of an intensity of radiation without serious injury to normal structures quite impossible in most places where epitheliomas occur. However, in skin cancer, particularly, we have been impressed by the fact that certain growths enormously tolerant to radiation are readily curable by extirpation, and it is not a far step to assume that the same condition holds true in cervical cancers. Granting that this is the case, a combination of radium and operation would seem to be the most logical treatment. I should advise that radium alone be limited to the old, the diabetic, the nephritic and other constitutionally sick cervix cancer sufferers: that radium and operation, or operation alone, be used with the remainder, until definite conclusive evidence is at hand."

"Let us emphasize that the beginners should not wade through all the misadventures which we, as pioneers, have gone through. The cost to the patient is too high. Take time, go to those who have had experience, and learn how to treat safely."

Stone³ expresses views less favorable to operation. "In the hands of a few highly trained pelvic surgeons, at the expense of a high primary mortality and numerous complications and sequelae, a definite percentage of permanent cures has been obtained, compared with which, because of the factor of time, our present estimate of radium must be largely measured by the primary results. Operations, therefore, for the treatment of uterine cancer, continue to be performed to an unjustifiable extent, producing unnecessary suffering and mortality, and bringing discredit to both operation and all other sincere efforts to cure the disease. For all cases, therefore, of primary uterine cancer, with few exceptions, radium should be regarded as the method of choice." Of the great value of radium for relief, in most cases, primary and recurrent, and prophylactically after operation, Stone is convinced, but he judiciously refrains from using the term "cure." Too short a time has elapsed

to make claims in regard to cures by the use of radium.

In early cancer of the cervix, he is inclined to use radium without operation; but on account of the occasional occurrence of lymph-node metastasis, a condition not amenable to treatment by x-ray or radium, according to Stone, operation may sometimes be advisable. But radium "one or two weeks prior to the operation, will materially improve the results that have hitherto been obtained by operation alone."

"Lastly, a strong plea is made to avoid treatment of primary cases that are too far advanced. Unless this warning is generally and promptly heeded, much unnecessary suffering will continue to result, and radium will soon be as discredited as is the operation, in the eyes of the public. There are numerous primary cases in which the general health appears to be little, if at all, affected, but in which the local lesion has advanced so far that all of the normal anatomical relations of the pelvic structures are obliterated. To treat such cases will result only in the premature production of the terminal stage of the disease."

Kohlman⁴, on the basis of his experience with radium in cancer of the cervix, recommends that all inoperable cases be given the treatment. The primary results are sometimes quite marvelous, but caution should be used in speaking of a cure. In case of a recurrence following operation, radium should be tried, but the results are not very satisfactory.

Preoperative radiation, if used, should be followed by early operation, not more than four weeks. A longer interval seems to increase the difficulty of the surgical procedure. Kohlman uses post-operative radiation as a routine, but calls attention to the greater care which must be employed in these cases to avoid fistulas.

In regard to the questions as to whether radium should be the treatment of choice in early and operable carcinoma, Kohlman inclines toward an affirmative answer. The results, though highly satisfactory so far, need time for a more thorough and complete test. As an accessory in extensive cauterization, Kohlman commends ligation of such arteries as are accessible, as ovarian and internal iliaes. The results in his hands justify the procedure.

Kohlman also calls attention to the fact that improvement promptly follows the use of radium, as a rule; if there is no improvement after two treatments, further use of radium makes no impression on the growth.

Taussig⁵ makes an analysis of some failures in radium treatment of cervical cancer. "The wonderful palliative results and considerable number of cures following the radium treatment of cervical cancer, have been satisfactorily established in the reports of various clinics in the last five years. In the future, our efforts should be directed, not to the narration

of occasional successes, but to the analysis of our still far too frequent failures with this method of treatment. Only by such a critical review of the technic and results of various methods of treatment can we hope to find measures that will bring our permanent results to a point in advance of those obtained by surgery."

Recognizing the limitations necessary now, he tentatively summarizes his conclusions as follows:

1. Radium treatment of uterine cancer should be kept in the hands of the gynecologist rather than the roentgenologist, but such a gynecologist should seek preliminary training in the use of radium and must have continued opportunity for observation and treatment of cancer cases in order to reduce mistakes to a minimum.

2. Good permanent results can be obtained in a certain proportion of cervical cancers with amounts of radium not exceeding 100-150 mgrs. of the element, though the use of large amounts in the form of emanation will doubtless decrease complications and increase the number of cures to some degree.

3. If possible, all necessary treatment should be given within the first six- to eight-week period before sclerosis has set in and rendered the cancer less accessible and the normal tissues more susceptible to injury.

4. Tumor filtration, or light metal filtration, together with intracervical application, does most good and least damage; 2500 to 3500 mgrhs. are usually enough to give results in the favorable cases.

5. In the absence of the Bailey bomb and large amount of emanation, well directed and prolonged x-ray from 6-8 portals will usually affect the parametrial and glandular involvements.

6. Prolonged necrosis and fistulas are due to repeated treatments, to vaginal applications and to heavy gamma radiation, or to a combination of the three.

7. Rectovaginal fistulas are more frequent and vesicovaginal fistulas less frequent after radium treatment.

8. Operation is to be preferred in all operable cases under 35 years, and in the early operable cases beyond this age. Radium is to be recommended wherever obesity, lung, heart, or kidney lesion, makes operation difficult or dangerous, and in advanced operable, borderline, and inoperable, but not in the advanced inoperable group with cachexia.

CANCER OF THE UTERUS AND OPERATION.

Although, in the opinion of some, radiation of cancer of the uterus is the best method of treatment, still it is only by a careful study of the results of operation that a fair basis for comparison can be obtained. If for no other reason than this, Mayer⁶ justifies his account

of the experience of the Tuebingen Clinic from 1902 to 1916, inclusive. In all, 893 cases were observed. 725 of the cervix and 168 of the body of the uterus.

The inoperability percentage was 34.7 per cent. (257 cases), due, nearly always, to local extension of the growth. These are the cases in which operation being out of the question, any improvement in end-results due to radium is a gain. But it is not clear yet that we can expect anything except palliation, and in some cases, radiation seems to accelerate the course of the disease. Sometimes fistulas are produced, directly as a result of radiation.

The primary mortality varied greatly, from 37.9 per cent. to 8.7 per cent., the latter figure being for the last year (1916). The percentage for the whole series was 20.3. The causes of death were: peritonitis (50), pyelitis (12), pneumonia (7), embolus (10), anemia and cachexia (14). Against this must be noted the lack of primary mortality after radiation.

Graves⁷ presents a summary of his personal experience in the treatment of cancer of the cervix with radium and by operation. The series of cases is not large, and he notes that it is not wise to draw comprehensive conclusions from limited material.

Graves says that in his experience not a single case of inoperable cancer has been cured by radium, although surprising and even startling temporary improvement and apparent cures were observed sometimes. Graves says, "In view of the uncertain and sometimes treacherous behavior of radium in the treatment of inoperable cases, we have not felt justified in substituting it for radical surgery in cases favorable for operation."

Although, in recent years, extensive statistical studies of the operative treatment of cancer of the cervix are less frequent than when the more extended operation was so enthusiastically received, the results are improving. The percentage of operability is apparently rising from getting cases earlier; the primary operative mortality is distinctly less (Graves 5 per cent., Cobb 5 per cent.), and the post-operative complications, or fistulas diminishing. Fistulas following operation are less frequent and more amenable to treatment following operations than after radium. The percentage of absolute cures is also apparently rising.

Graves does not minimize the difficulty of the abdominal hysterectomy, or the dangers. "But the days of reckless resection of ureters and bladders and vast bloody dissection of the pelvis are gone by. Surgeons now are adopting a saner conservatism, both in the choice of cases and in the technique of the operation. Hence the lower mortality, excellent convalescences, and freedom from disabling post-operative sequelae." It is too soon to tell what radium can accomplish, so until more adequate

proof of its curative properties is produced, Graves prefers operation for cases in which the growth is apparently eradicable.

Okabayaski⁸ describes the technic which he has developed and employed satisfactorily in a large number of cases of cancer of the cervix *uteri*. It is based on the technic of Takayama, described some time ago. His claims for it are: increased operability; increased ease of performance and just as much safety.

The abdominal route is employed. The patient is prepared as for any abdominal operation, except that the discharge from the cervix must be treated. Under local anesthesia, pantopon-scopolamine injections, the cervix is curetted, thoroughly washed out with soap and water, irrigated with 1-1000 solution of corrosive sublimate, or 1-100 lysol. Sixty per cent. alcohol is then poured into the vagina, which is swabbed out. The vagina is then packed with gauze wet with sixty per cent. alcohol. The anesthetic is hypodermic injection of pantopon with scopolamine hydrobromide, one and one-half hours after operation. Immediately before the operation, spinal anesthesia is given. If this proves unsatisfactory, or the effect wears off, inhalation anesthesia may be added.

Following free incision and packing back the intestines in the Trendelenburg position (not excessive), careful exploration is made to determine operability. Just what cases are operable, when it comes to consider border-line cases, cannot be determined except by experience. Okabayaski lays down no rules on this point.

For the many details of the technic, reference must be made to the original article, but the general plan of procedure may be noted here. It is to cut the infundibulo-pelvic ligaments, then the round ligament, cut the uterine artery as close to its point of origin as possible, and then attack the parametrium from *behind* and *below*. When the pelvic floor has been reached in this way on both sides, the bladder is then separated as far down as necessary. Then follows the division of the anterior and lateral parametrial and paravaginal tissue and division of the vagina. Finally, the enlarged glands are removed by blunt dissection. No effort is made to remove the glands with the uterus, in one piece.

No figures are given except those of Takayama, whose operability is given as 81.5 per cent. The operation is claimed to be less dangerous and more successful than the original Wertheim technic. But even with the lack of definite figures to support the author's contentions, the suggestion for this somewhat different method of approach of the really difficult part of hysterectomy for cancer, with excision of the parametrium, with little bleeding, is worthy of careful consideration.

CAUSE OF CANCER.

As long as the cause of cancer is unknown, investigators will continue the search for a possible microorganism, in spite of the evidence at hand which suggests that some other factor is the cause. Nuzum⁹ has made a critical study of an organism associated with a transplantable carcinoma of the white mouse.

The results of Nuzum's careful bacteriological work on a certain type of mouse cancer (Crocker carcinoma No. 11) are the finding of a minute micrococcus, which will grow only under certain anaerobic conditions in special medium. The details of the technic need not be described in this review, but are given in the original article. This micrococcus was found so constantly that it suggested the possibility of some important rôle in the riotous overgrowth and lawless proliferation of the carcinoma cells.

"Injections of pure cultures of the organism subcutaneously in the breast tissues of mice have, in many instances, reproduced tumor nodules, which grow progressively for periods of ten to thirty days, and slowly regress in the majority of cases. Microscopic sections of such tumor nodules, removed at 24-hour periods, reveal a mass of newly formed tissue cells rapidly dividing, and supported by a newly formed stroma, which becomes vascularized.

"By stimulating the tumor cells to their maximal degree of virulence, either by incomplete surgical removal with recurrence of the tumor, followed by rapid passage through a series of mice of the same stock, or by injecting cultures of the organism into growing tumors, followed by transplantation, a method has been found whereby pure cultures of the organism have reproduced new growths.

"Subcutaneous injections of anaerobic cultures of the minute organism under these favorable experimental conditions, designed to exclude the probability of carrying over living cancer cells, have, in several isolated instances, led to the production of tumors which grew steadily, producing cachexia of the mouse. Histological studies have shown that these tumors do not vary in structure from the original growth known as the Crocker carcinoma No. 11. Transplants from the tumor growths produced by injections of the organism have yielded similar growths in 80 per cent. of a series of inoculated mice. The organism has been readily recovered from these experimental tumors.

"Inoculation of cultures into and adjacent to tumors appears to stimulate the growth and enhance the virulence of the tumor tissue in subsequent transplantation.

"In contrast to these observations, control injections of a limited number of cultures of staphylococcus aureus and albus, bacillus prodigiosus and streptococcus hemolyticus into

normal mice have never, in the author's experience, reproduced tumor growth; abscess formation or septicaemia being the usual result.

"Furthermore, when active cancer cells are mixed with cultures of ordinary bacteria, inoculation in mice usually fails to give a 'take.'

"Finally, it should be clearly stated that the author makes no claim of having discovered the cause of cancer. The association of the minute microorganism with the cancer cells of the transplantable mouse carcinoma suggests that further careful study be made of this organism. While it is theoretically possible that living cancer cells may have been carried along in subcultures, the observations recorded suggest that two agents may be concerned in the etiology of this mouse carcinoma; the first agent being the minute coccoid bodies stimulating the cells to rapid division, and second, the cancer cell itself closely associated with the organism and transmitting it from host to host in subsequent transplantations."

Intensive bacteriological studies are being made of a large number of human cancer patients, and the results will appear later.

FIBROIDS AND RADIATION.

Pfahler¹⁰ writes, after 14 years' experience in the treatment of uterine fibroid and uterine hemorrhage by means of radium and x-ray. He considers in detail the theory of the effects of radiation, indications and contraindications for treatment by radiation; indications for use of x-ray alone, radium alone, and for the combined use of radium and x-ray; advantage and disadvantage of radiation; results and technic. On this last, he says, "the technique of radiotherapy, like that of surgery, cannot be accomplished in a few hours, nor a few days, nor even a few months. . . . One should be familiar with the principles of the physics of radium and the roentgen rays, and these principles should then be applied with skill, together with due knowledge of the pathology and of the clinical results and experience obtained by others and those obtained in similar cases. . . . I cannot urge too strongly the greatest attention to the minute details of technique." He closes his paper with the words, "In the hands of men who have investigated this subject thoroughly and have used radiation skillfully, the results have been brilliant, the patients have been enthusiastic, and there have been no regrets."

HEMORRHAGE FROM THE UTERUS AND RADIATION.

Jones¹¹ reports several series of gynecological cases treated with radium. In suitable selected fibroids of the uterus, the results are most satisfactory. The patient should not be less than forty years of age, because the menopause is likely to occur as a result of the treatment. In younger women, it often is desirable to pre-

serve the possibility of pregnancy. The tumor should not be large; if over the size of a three months' pregnancy. Jones prefers surgical treatment; pedunculated fibroids as well as the smaller intramural ones, when complicated by adhesions or tubal disease, are removed surgically. Diagnostic curettage, with careful microscopic study of the scrapings, always precedes the dose, and with adequate screening, the post-operative course, is generally without complication. The menstrual reaction varies with individuals. Some do not have any periods after treatment, while others have as many as three, the flow decreasing in amount.

The menopause precipitated is more acute than the normal one, but seems to yield rather readily to corpus luteum, or ovarian residue. Very little change can be detected in the size of the uterus before the end of the twelfth week, after which the contraction is rather rapid. Of 120 cases treated, 69.1 per cent. have been entirely relieved for over two years; 22.1 per cent. have been treated within so short a period that they may be classified only as improved; from 8.8 per cent. nothing has been heard.

In hemorrhage without obvious cause, organotherapy should be given a thorough trial before resorting to radium. The appropriate dose is very difficult to determine, as so many of these patients are in the child-bearing age, and patients vary markedly in their susceptibility to small doses of radium. Therefore small doses are indicated. In the bleeding of the menopause, radium is practically specific.

Of cases of cancer of the uterus, all that need be said is that, as sufficient quantities of radium are more easily obtainable now, the tendency has been to restrict the group for operation and enlarge the group for radiation alone.

The groups of cases reported in this article came under the observation of different physicians, and Curtis was especially interested in leucorrhea. Of sixty cases treated, thirty-six are cured; eleven are improving; ten are so recent as to be called doubtful. Three cases have not only been cured of the discharge, but have since become pregnant.

In recent years, the use of radium in the treatment of menorrhagia at the Mayo Clinic, has been increasing, and Stacy¹² gives the conclusions which now determine its applications.

In young women with fibroids causing menorrhagia, radium should be used only in carefully selected cases, and in small amounts in the initial treatment. The danger of bringing on the menopause is here to be feared. In general, abdominal myomectomy is preferable to radium in this group of cases. Pregnancy may occur after the application of radium, but in a small percentage of cases only.

Radium is the ideal treatment for menorrhagia in patients more than thirty-five, who

have a fibrous type of uterus, or for patients who have small fibroids and menorrhagia.

In cases in which the history is suggestive of carcinoma of the fundus, an abdominal hysterectomy is the safe procedure, and should be advised even if the diagnostic curettement is negative for malignancy.

Unless there is a definite contraindication, large fibroids should be treated surgically, because of the possibility that the degenerative changes may occur in a tumor in which the blood supply has been interfered with, and because of the possibility of a mistaken diagnosis.

The study by Titus¹³, of two hundred gynecological cases treated with radium at the Woman's Hospital (New York), is excellent on account of the clear method of presentation. Being itself a summary, it is difficult to condense, but indications, technic, dosage, constitutional reaction, symptomatic relief, effect on lesions, sequelae and ultimate results, are all considered. His conclusions in general confirm those of most other workers, and he closes with the statement that "radium may eventually remove carcinoma of the cervix from the domain of surgery."

CHORIOEPITHELIOMA.

The subject of chorioepithelioma has been set forth by Geist¹⁴ on the basis of fourteen cases which came under his observation, and the results of his study represent some advance on the exhaustive investigations of Ewing, published in 1910. The general confusion Ewing tried to dispel by showing a correlation between the histological structure of the chorionic tumors and the clinical course, and pointing out the prognostic value of the microscopic appearance of the tumor. But there are too many cases that are "atypical," as indicated by the report of Ewing, and confirmed by Geist, to make decision generally easy.

A convenient summary may be presented as follows. There are at least two groups of tumors arising from the chorionic epithelium, included under the term "chorioepithelioma." The first, the so-called "typical chorioepithelioma," better called choriocarcinoma, consists of both cells of Langhans and syncytium, growing abundantly and lawlessly, invading the wall of the uterus and giving metastases freely. If villi are found they are not a part of the tumor, but a remnant of the pregnancy. The second is the so-called "atypical chorioepithelioma," better called syncytioma, consisting entirely of syncytial cells. The prognosis here is favorable; hysterectomy is indicated only by the clinical course, for example, if bleeding persists or is severe. Closely related to the syncytioma, histologically, is what Ewing has called "syncytial endometritis," but it is better called syncytial hyperplasia. It represents what

seems to be merely an abnormal reaction of the syncytium, does not form a true tumor, and spontaneously disappears. Between the first and the second named groups of true tumors, there are many varieties which, perhaps, are not clearly enough recognized yet to be called anything but "transition" stages. Histologically, the two kinds of epithelium are found, sometimes growing rather freely and lawlessly, sometimes rather regularly, and with villi which more or less approximate the normal type. Some of these are spoken of as "destructive placental polyps." It is in this group that diagnosis is most difficult from curettings or expelled material, and prognosis is doubtful from histological structure. The treatment, however, is hysterectomy, because it generally gives good results, and until we know more about the tumor, it seems wiser to take the risk of operation, which can be formulated, than the risk of fatal outcome from the tumor, which is still quite unknown.

In cases of clear-cut choriocarcinoma, early abdominal hysterectomy gives fair prognosis. In case of syncytioma, when abdominal hysterectomy is indicated by the clinical course, operation gives excellent results.

OÖPHORECTOMY.

Richardson¹⁵ makes a vigorous plea for not removing the normal ovary with the uterus if the latter organ has to be taken out. It has been claimed that the ovary atrophies after hysterectomy and that ovarian function ceases. But Richardson says "from subsequent gross and microscopic studies of ovaries retained after hysterectomy, it has been shown that when degeneration occurs, it is to be attributed either to associated ovarian disease or to a damaged ovarian circulation, or to both of these factors."

"Through numerous experimental studies, the theory of an essential physiological interrelationship between the uterus and the ovaries has been completely demolished, and it has been conclusively demonstrated that ovarian function, except in so far as it operated upon the uterus, may proceed uninterrupted after hysterectomy."

"The danger to the ovarian circulation is tremendously increased through removal of the Fallopian tubes along with the uterus, and where this is necessary, every possible care should be exercised to stick close to the tube and neither to clamp or ligate a single millimeter of the mesosalpinx beyond what is absolutely required. Failure to appreciate this anatomical fact is undoubtedly responsible for a large percentage of degenerated ovaries following hysterectomy."

If hysterectomy is performed with due regard to that part of the ovarian circulation which need not be disturbed, the ovary will not degenerate as a result of the operation.

and no untoward effects will ensue. The value of the ovary in the endocrine system is too great to permit its removal except for definite diseased conditions.

Although the question of whether normal ovarian tissue should be left in the body when the uterus is removed before the menopause is not settled to the satisfaction of all operators, the weight of opinion is that the ovary has a function apart from reproduction, and that its value in the body economy is sufficient to overbalance the possible dangers from post-operative changes if it is not removed. Hawks¹⁶ reports a series of cases followed up after hysterectomy for fibroids, and his views coincide with those just stated. An interesting detail in his report is that in one patient operated on for incisional hernia after hysterectomy, a recent corpus luteum was found in the ovary. The patient had had some flushes, but the microscopical diagnosis was clear. It indicates that ovulation may persist for two years after hysterectomy, but of course throws no light on the chemical changes which may have occurred in the internal secretion of the organ.

Ochsner¹⁷ presents the following hypotheses as a result of his consideration of data presented by veterinarians with reference to the cow, supported by some observations of his own on human patients.

(1) An unabsorbed false corpus luteum prevents ovulation and is a common cause of sterility, and the expression or excision of such a false corpus luteum invariably brings on menstruation.

(2) The excision or rupture of a true corpus luteum invariably results in interruption of pregnancy, at least during the early months of pregnancy, and it may be looked upon as a common cause of abortion.

(3) An injury to either the true or false corpus luteum may simulate ruptured extra-uterine pregnancy.

It is the suggestion that injury to a true corpus luteum is a common cause of abortion that is especially interesting, and it is something which ought to be kept in mind always by surgeons, during abdominal or pelvic operations on pregnant women. There are a number of points about the cause of so-called spontaneous abortion which are by no means clear, and even in cases where an obvious cause is present, the mechanism is by no means clear. Why, for example, should a fall, not very severe, perhaps be followed in three or four days by miscarriage? The problem is well worth experimental investigation.

OVARIAN CYSTADENOMA.

Erdmann and Spaulding¹⁸ present a study of the papillary cystadenoma of the ovary. It is a careful review of some aspects of the sub-

ject as presented in the literature, supplemented by the experience of the authors. They summarize their conclusions as follows:

1. Papillary cystadenoma is the most important surgical disease of the ovary.

2. It is variously stated to occur in from 10 to 27.5 per cent. of all ovarian tumors.

3. A large number of cases occur in patients under the age of thirty.

4. The most probable development is from cellular perversion of the germinal epithelium.

5. There is a strong tendency to bilateralism (22.2 per cent.) and local metastasis. General metastasis is not rare.

6. Bilateral ovarian tumors demand a careful examination of the abdominal viscera and breasts.

7. The absence of symptoms referable to the pelvic organs is a deceptive feature of the disease.

8. Ascites is an advanced symptom and indicates rupture, peritoneal metastasis, and often malignancy.

9. Every woman with ascites, without a sufficient explanation in the liver, heart, peritoneum, or kidneys, should be laparotomized, even though bimanual examination be negative.

10. Microscopically 66.6 per cent. of papillary cystadenoma are cancerous or precancerous.

11. Every ovarian cyst must be removed intact by abdominal section as soon as discovered.

12. In unilateral oöphorectomy, the patient should be periodically examined.

13. Careless or rough handling resulting in intra-abdominal rupture, tapping to reduce the size of the tumor and the vaginal approach, cannot be too strongly condemned.

14. Radium should be employed in cases in which the ovaries or the peritoneal implants could not be surgically removed.

Miller and Viko¹⁹ report an unusual case of papillary adenocystoma of the ovary. As with many growths of this type, the outcome was fatal, extensive involvement of intra-abdominal organs and some metastases. The course was over five years, but accumulation of fluid in the chest within a year of the beginning of symptoms indicated pleural metastasis. The peculiarity of the case from the anatomical point of view, was the deposit of lime in the tumor and some of the metastasis giving the psammocarcinoma or malignant sand tumor. From the clinical point of view, the striking feature was the number of tappings performed: left side of the chest, 603; right side of chest, 259; abdominal, 20. The estimated fluid withdrawn totalled 600,000 c.c.

McClellan²⁰ reviews some of the literature on ovarian dermoids and reports a case. He emphasizes the possible value of the x-ray

in making preoperative diagnosis, especially if the bladder be filled with air, to get a better background for control.

PUDENDAL HERNIA.

Grattan²¹ describes a case presenting an unusual type of hernia, of interest from its rarity and difficulty of cure. He uses the term "pudendal" as somewhat similar cases have been described under this title, but points out the inappropriateness of the appellation. The patient, a woman of 53, complained of irritation in the rectum with difficulty in moving the bowels, and, in addition, a bearing-down sensation in the vagina. She had been through three pregnancies, including a difficult twin delivery, with loss of one of the twins as a result of the protracted labor. Local examination at first showed nothing abnormal,—no descent of uterus, no cystocele, no rectocele, no hemorrhoids, nor prolapse of rectum. Repeating the examination and having the patient cough and bear down repeatedly, a definite impulse in the adductor region of the left thigh was detected. A mass also was made out, which was reducible upward with gurgling. The course of the hernia could not be made out.

Abdominal operation was performed, under difficulty, as the patient was obese, and an easily reducible loop of sigmoid found to pass through a triangular opening in the pelvic floor. Probably the rent in the levator had occurred during the difficult twin labor.

Extirpation of the sac was not attempted, and with "great effort and difficulty" the triangular opening was closed with mattress sutures of double Pagenstecher linen. A continuous suture was passed over the mattress sutures and the sigmoid was anchored at the pelvic brim and again about two inches higher. Two years after operation the patient was free from the symptoms of which she had complained, and there was no sign of recurrence.

COMPLETE LACERATION OF PERINEUM.

Watkins²² reviews some of the important steps of the development of the operation for old complete laceration of the perineum, noting contributions of Warren, Kelly and others. He describes also the technic which he himself now uses, combining features of older methods, but emphasizing two points especially. The first of these is the formation of a flap (Tait) or pulling down the rectum if necessary (Noble), so that no suturing of the rectal wall is necessary. The second point is that the sphincter muscle is not dissected free and sutured individually. In any case, the union is by connective tissue, and the trauma of dissecting out and making traction on the muscle itself is likely to prevent satisfactory healing.

Attention to these points will give improved

results, according to Watkins, comparable to operations for incomplete laceration.

TUBERCULOSIS OF THE VAGINA.

Cullen²³ reports a case of tuberculous ulcer of the vagina. There was evidence of "well resisted parenchymal tuberculosis" of the lungs. Abdominal operation for a small ovarian cyst showed evidence of slight tuberculous disease of head of cecum only. Pelvic structures were without sign of tuberculosis. There was no evidence of tuberculosis of the uro-genital system of the husband, though he has pulmonary tuberculosis.

In the vagina, on the anterior wall, was a punched-out ulcer 6 x 4 cm. in diameter. Microscopical examination of sections from the wall of the ulcer show tuberculosis. The origin of the vaginal infection seemed to be hematogenous. Since radium and x-ray treatment of the ulcer produced no appreciable improvement in four months, the ulcer was resected, but about six weeks after complete healing of the somewhat broken-down wound of operation, tuberculosis of the vagina was again discovered, and was treated, with improvement, by the Kromayer light.

SILVER WIRE IN BLADDER FISTULAS.

Eastman²⁴ emphasizes the value of silver wire as the suture material for closing vesicovaginal fistulas, because some authorities do not acknowledge its supremacy. Realizing that his opinion had no experimental basis outside of his clinical work, he carried on some laboratory investigations, making Petri dish tests with bacteria and several kinds of suture material. The result of these was to indicate that under Petri dish conditions, silver wire was less bactericidal than any other suture material he used. The opinion that silver wire is the best suture material for fistula operations is supported by so much clinical evidence, however, that the surprising results of the laboratory experiments must be regarded as another illustration of the danger of drawing conclusions for the body from experiments which do not reproduce vital conditions.

LEUCORRHEA—OPERATION.

Discharge from the cervix, constituting one form of leucorrhea, may be a very troublesome symptom, and difficult to remove. Infection of the deep-lying glandular tissue is the underlying cause of the persistence of the discharge, and the most efficacious method of treatment is to remove the infected tissue. Palliative methods generally give but slight satisfaction.

Mathews²⁵ recommends a slight modification of Sturmdorf's "cone excision" of the cervix, removing a cone of cervical tissue from the vaginal portion to, or almost to, the internal os. A special stitch described by Sturmdorf is then

used to draw up the vaginal mucous membrane into contact with the remnant of cervical epithelium.

The results compare favorably with those following amputation of the cervix, as far as relief of symptoms is concerned. Whether complications regarding conception and child-bearing as serious as following amputation of the cervix will ensue, has not been determined as yet, but from the patients delivered after the "cone excision," a limited number as yet, it seems as if there would be little if any more trouble than following trachelorrhaphy. In the view of the author, "cone excision," rather than amputation, is the best method for eradication of the infected area.

LEUCORRHEA—CAUTERY.

In certain cases of eversion of the cervix, the method of using the Paquelin cautery (Hunner) has proved very satisfactory. Superficial linear cauterizations are made, and as these heal, the eversion tends to become smaller, sometimes disappearing.

Dickinson²⁶ suggests an improvement, employing the delicate cautery used in the nose. The instrument is smaller and therefore has greater elasticity of application. It may be used easily in the office, and no anesthetic is required. It is less likely to produce excessive burning, and in many cases provides a successful substitute for operation.

CONDYLOMA OF THE CERVIX.

Wharton²⁷ reports a case of gonorrheal condyloma of the cervix, on account of the great rarity of the condition. He presents a review of the very brief literature on the subject. He cites two distinct types of cervical condyloma, the gonorrheal and the tuberculous, either of which may be confused with malignant growth of the cervix. Gonorrheal condylomata are generally found with or soon after pregnancy, are associated with other signs of gonorrhea, and have a good prognosis. The local growth may be removed, but the focus of infection should be cleaned up.

Tuberculous condyloma of the cervix is almost always accompanied by other manifestations of the disease, and thus operative treatment should be undertaken only after a careful study of the lesions. The prognosis depends on the concomitant lesions.

PELVIC ABSCESS.

Attention should be called to the comprehensive analytic study by Wharton²⁸ of pelvic abscess in the female. For many interesting details, reference must be made to the original article, in which a historical account is included. The technic of vaginal incision and drainage is described in detail.

"From this summary it is not difficult to determine the proper rôle of this operative pro-

cedure in the treatment of pelvic abscess and the purulent forms of pelvic inflammatory disease. As a measure of expediency, it undoubtedly saved lives, and makes it possible to avoid many a hazardous abdominal operation under extremely unfavorable circumstances. As a conservative surgical procedure in itself, its use has resulted in permanent relief in 25 per cent. of all cases, and for this reason, if for no other, should always be tried in every case of pelvic abscess that is amenable to this form of treatment. In the majority of instances, however, it has proved to be but the first step in the safest and most conservative method of obtaining permanently good results in the treatment of patients with pelvic abscess. In view of our findings in this series of observations, we are compelled to admit that as a curative procedure, vaginal incision and drainage is, in the majority of instances, a failure, but when considered and used as a measure of expediency, to be followed when necessary by the employment of more radical procedures, it has a definitely indicated use and fulfills an important function in the conservative operative treatment of pelvic abscess and the purulent forms of chronic pelvic inflammatory disease."

Emge²⁹ has called attention to the subject of varicose veins in the female pelvis, which for some time has received little mention in gynecological literature. His conclusions, based on a study of thirty-five cases in his own experience, he states as follows:

Varicose veins of the broad ligament in general, and of the ovarian circulation in particular, are comparative common occurrences in women. "The symptomatology is plain enough in most uncomplicated cases to suggest their presence. The diagnosis is, in most instances, made certain by rectovaginal examination in the recumbent, alternating with the sitting position. The differential diagnosis is aided by the normal leucocyte count. Mild and early cases can be permanently relieved by conservative measures. The resection of the veins, or more so, hysterectomies, is unnecessary to accomplish a cure. A high suspension of the uterus, with a shortening of the uterosacral ligaments, offers the best means for a permanent symptomatic cure, with a possibility of a permanent anatomical regulation."

He shows two tables: the first summarizing symptoms and probable causes of the varicose condition of the veins; the second summarizing the preoperative diagnosis, the findings at operation and the operation and its after-results.

The important significance of Emge's study is that he calls attention to the mechanism of the production of certain symptoms in certain cases of pelvic diseases: one of the causes of discomfort in retrodisplacement of the uterus, for example, is the distention of the veins of

the broad ligament produced by obstruction; for reflux through the soft veins is prevented by slight compression.

TEST OF PATENCY OF TUBES.

An accurate knowledge of the anatomic patency of the tubes is admittedly important in formulating prognosis and therapy of female sterility. It is well to remember, as Giles states, that practically 11 per cent. of female sterilities is due to tubal disease. Adding the Fallopian tubes closed by peritonitis gives an average incidence of 15 per cent. of cases of sterility due to pathologic tubes.

A method for determining the patency of the tube without exploratory laparotomy is described by Rubin³⁰. Oxygen is introduced into the uterus under slight pressure; at first, sufficient oxygen was employed to give easily detected distention. But fluoroscope examination will detect much smaller quantities of oxygen, so that on an average 150 c.c. was employed later. The details of the simple technique are described by Rubin.

The method is safe, easy of application and apparently adequate. It is contraindicated in the presence of any acute or subacute pelvic infection, and in the presence of any "purulent diseased Bartholinian glands, urethra, vagina or cervix."

The method is indicated:

1. In all cases of primary sterility in which all factors except that of tubal disease may be excluded. Here it has definite prognostic as well as diagnostic value.
2. In cases of primary sterility in which the patient is known to have passed through a pelvic infection of gonorrheal origin.
3. In cases of primary sterility in which the patient had peritonitis of appendicular origin.
4. In cases of relative sterility in which the patient had a pelvic infection following childbirth or abortion, particularly when induced.
5. In cases of one child sterility, without the definite history of pelvic infection.
6. In cases in which it had been necessary to remove one whole tube and part of another for hydrosalpinx or pyosalpinx (conservative surgery).
7. After unilateral ectopic pregnancy, to determine the patency of the residual tube.
8. After cases of salpingostomy for the cure of sterility of tubal origin, to demonstrate the success of the operation which was calculated to effect open tubes.
9. After sterilization by tube ligation, to test the patency of the tied or severed tubes.
10. After multiple myomectomy, to make certain that at least the uterine ostium of the tube has been left intact.

PERITONEAL INFLATION.

Peterson³¹ has tested the method of peritoneal inflation and x-ray as an aid in gynecologic and obstetric diagnosis. Employing the procedure only under stress of persuasion and with some prejudice, he has become convinced of its simplicity and safety, and then of its value. The results of his experience with over 150 inflations, he summarizes as follows:

1. The uterus, together with the tubes and ovaries, can be clearly shown by pneumoperitoneal roentgenography.

2. Owing to their distention with gas, the tubes are rather more clearly demonstrated by the x-ray where inflation has been brought about through the transuterine route than where the inflation has been made transperitoneally.

3. On account of the rapid absorption of the carbon dioxide gas, with quick subsidence of the discomfort produced by the inflation, this gas should be used in preference to oxygen, which is very slowly absorbed.

4. Irregularities of the uterus, omental and bowel adhesions are clearly demonstrated by the pneumoperitoneal x-ray.

5. In not a few instances the diseased and enlarged appendages are more clearly made out by pelvic roentgenography than by the most careful and searching bimanual examination, even under anesthesia.

6. With the improved position (knee chest and Trendelenburg) smaller and smaller quantities of gas will be necessary for inflation. Thus discomfort will be reduced to a minimum.

7. If the technic of pelvic roentgenography be good, retention of the bowel coils in the pelvis will be proof of adhesions.

8. The pneumoperitoneal x-ray is able to demonstrate pregnancy at a much earlier period than is possible by the examining finger.

9. With good technic and good judgment in the selection of cases, both transuterine and transperitoneal gas inflation are free from danger.

10. Bimanual pelvic examination and pelvic pneumoperitoneal roentgenography are not antagonistic diagnostic methods. Each is valuable, and their value is enhanced if they be used in conjunction, each acting as a check upon the other.

MISCELLANEOUS.

Hewitt³² has evolved a technic for sterilization of the skin for operation which is satisfactory in most cases (not applicable to the face). He claims for it all the advantages of iodine and none of its disadvantages. Experimental tests were made extensively, and comparisons with other antiseptic solutions which also were standardized. The method finally adopted is

as follows: If the patient enters the hospital twelve hours before operation, the operative field is shaved, scrubbed with soap and water, and a thin, sterile dressing applied. In emergency cases, the preliminary preparation consists of a dry shave. In either case, immediately before operation, the field is scrubbed with ether for three minutes, followed by picric acid solution, for three minutes.

The picric acid solution is six per cent., namely, a saturated solution in 70 per cent. ethyl alcohol. The only disadvantage of this method is the stain, which cannot be removed if it has been on for an hour. Twenty-five per cent. solution of ammonia in ethyl alcohol, or 5 per cent. solution of carbonate of soda, will take it off if applied early.

Cultures from all wounds which had any discharge at all, thirty-one in two hundred and sixty-nine, showed eight infections, which compares favorably with results in other clinics.

Some one has said that in medicine, a good result may be an accident, a bad result proves inadequate treatment. If we will, we can learn more from our failures and mistakes than from our success. Peterson³³ emphasizes the ease with which errors in gynecologic diagnosis can be made, reporting five cases of misplaced organs which were at first unrecognized. No fatal result followed the error, but such occurrences are humiliating, and Peterson's account of his experiences should be read and pondered by every physician. It illustrates the old adage, "More mistakes are made by not looking than by not knowing," because in every case the correct diagnosis could have been made easily, if systematic and thorough examination had been employed.

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LEGISLATIVE MATTERS.

House 601. Bill relative to the physical examination of pupils in the public schools has received an adverse report, which has been accepted by the House.

House 495. Bill providing that children in private schools shall comply with the requirements for vaccination as now in force for children attending public schools, has received the support of the Committee on Public Health in redrafted form defining private schools. This is one of the constructive proposals of the year. It will be bitterly opposed. Physicians know the importance of this measure, and if active personal work is done throughout the State, its passage could be secured. Legislators will vote for it if the benefits are explained. It is a public health measure and has economic importance. It costs money to control a small-pox outbreak.

House Bill 639 has received the support of the Committee on Agriculture under the following resolve: "*Resolved*, That the department of agriculture is hereby directed to investigate the shipping and sale at wholesale and retail of milk and cream by contractors or dealers, and such other matters as are contained in house bill number six hundred and thirty-nine of the current year, and to report to the next General Court, not later than the second Wednesday in January, on the feasibility and expediency of licensing such contractors and dealers."

The Department of Public Health will have further authority under the following resolve, if adopted: "*Resolved*, That the Department of Public Health be authorized to continue the investigation, provided for by chapter nine of the resolves of nineteen hundred and twenty, and further provided for by chapter forty of the resolves of nineteen hundred and twenty-one, relative to the advisability of revising and codifying the rules, regulations and ordinances of the various cities and towns of the Commonwealth concerning plumbing, house drainage and like subjects. Report thereon shall be made to the General Court not later than the second Wednesday in January, nineteen hundred and twenty-three."

Senate Bill 360, for establishing a Child Welfare Commission in the City of Holyoke, provides for the creation of a milk station and one or more modification laboratories to provide pure, pasteurized and formulated milk for infants, and also to give prenatal and post-natal advice relating to the care of children, and provision is made for the employment of physicians, nurses, and assistants. This is a very important matter. One may question whether the specification of pure, pasteurized and formulated milk is a wise provision. If that should be changed so that the commission could provide such food as may be designated by the physician in charge, there would be wider latitude. Some children need something besides milk, essential though that food may be. The problem of feeding of children may be better understood in the future, and the commission should not be hampered. If the bill is enacted, Holyoke may be able to set an example for other cities and towns. The spirit behind this movement is very commendable.

THE ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH.

"The objects of said corporation shall be to conduct, assist, and encourage investigations in the sciences and arts of hygiene, medicine, and surgery, and allied subjects, in the nature and causes of disease, and the methods of its prevention and treatment, and to make knowledge relating to these various subjects available for the protection of the health of the public and the improved treatment of disease and injury." Charter of the Rockefeller Institute for Medical Research (1901).

The report of the Rockefeller Institute, published last year, states concretely what is being done to carry out the purposes of the founder. The Institute is divided into three departments: The General Laboratories, the Hospital, and the Department of Animal Pathology. At the head of the General Laboratories is Dr. Simon Flexner. The work is conducted under the following divisions: Pathology and Bacteriology, Chemistry, Experimental Surgery, General Physiology, and Biophysics. The Department of the Hospital, under Dr. Rufus Cole, is at present engaged in investigations in Infectious Diseases, Cardiac Diseases, and Metabolic Diseases.

These two departments are housed in three buildings situated in New York City. The Department of Animal Pathology, under Dr. Theobald Smith, is located near Princeton, N. J.

The results of the activities of the Institute are published in a series of studies. Three or four volumes appear every year and may be purchased for \$2 per volume.

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THE DEVELOPMENT OF SCHOOLS OF TROPICAL MEDICINE.

TROPICAL medicine has long been regarded as a special field for post-graduate study in medicine because the curricula for the usual medical degree are too crowded to permit the inclusion even of an outline of this subject. Moreover, those who, as army physicians, health officers, practitioners or medical officials of private corporations, are called upon to practise medicine or to prevent disease in the tropics, require far more than a superficial knowledge in this special field. In tropical medicine, as in other clinical branches of medicine, a well-rounded knowledge of general medicine is an indispensable prerequisite, but above all, broad and sound fundamental training is important for tropical medicine, because of the comparative scientific isolation and the consequent resonancefulness required of the individual when put to the test under conditions often prevailing in the tropics.

The subject of tropical medicine very naturally has reached its highest development as an important branch of medicine in the countries having the largest colonial interests. The need for opportunities for post-graduate study in tropical medicine was realized so fully in England twenty-five years ago, that Mr. Joseph Chamberlain, then Secretary of State for the Colonies, is said to have been instrumental in

the establishment of two schools of tropical medicine, namely, that of Liverpool, founded in 1898 and opened in 1899, and that of London, founded in 1899 and opened in the same year.

Most of the success and influence of the London school was due to the untiring efforts and wide reputation of Sir Patrick Manson, whose name is inseparably connected with this school and who served it from the time of its foundation until his retirement.

The Committee of Management of the Seamen's Hospital Society, making use of funds raised privately for the purpose, established the school in connection with their hospitals near the London Docks. Owing to rapid growth of the school in its first ten years, further sums were raised for its support, and immediately after the Great War, the school moved to improved quarters on Euston Road, London, where the offices, laboratories, library, museum and hospital were all accommodated under one roof. The hospital and laboratories were given by the British Red Cross and the Order of St. John, and more than £100,000 were raised by an appeal to the public. When one considers the enormous financial burdens assumed by Great Britain during the war, the raising of so large a sum, at such a time, has great significance.

The primary object for which the school was started was to afford adequate special training in tropical disease to medical officers of the Colonial Service, but from the first, the school was thrown open to all physicians qualified for practice, and was used by medical missionaries and practitioners of medicine intending to establish themselves in tropical countries.

The University of London recognized the importance of tropical medicine by making it one of the six medical branches in which it was prepared to confer the degree of M.D.

The usual medical degree in England is the M.B. The M.D. is not a requisite for qualification to practise, and can only be obtained by additional training, such as is given in this country in graduate schools of medicine.

The Liverpool School of Tropical Medicine, a year after it was started, was authorized officially to provide the obligatory course for Colonial medical officers proceeding to tropical countries. The objects and methods of this school were much the same as those of the London school. They have been set forth as follows:

1. "To give a practical training to medical men proceeding to the Tropics, in the special subject of tropical diseases, or to enable them to familiarize themselves while on leave, in a practical manner, with the results of the most recent research in all branches of tropical medicine."

2. "To conduct original researches into tropical diseases."

3. "To organize prophylactic measures against tropical diseases."

The London school emphasized as an object the teaching of physicians to observe, to record, and to study patients scientifically, because in the tropics a man must depend upon himself.

The Liverpool school now has a research center maintained in continuous operation at Manaõs, on the Amazon River.

The Institut für Schiffs-und Tropenkrankheiten was founded in Hamburg in 1900, in response to a demand emanating from the overseas interests and shipping of the city. Because Berlin was not a seaport and could not advantageously give instruction in tropical diseases, the German Government contributed, not only funds to the Institut in Hamburg, but also a certain number of salaried medical officers to assist in the work. The City of Hamburg provided hospital and laboratory facilities, the Navy contributed funds and a salaried assistant, and the Army another salaried assistant. The official physician of the port became the first Director of the Institut, and the office for medical officials of the port was installed at the Institut.

A short course on ship-hygiene and quarantine for ship's physicians, and a fuller course on tropical medicine suitable for medical officers of the Army and Navy, and for medical officials of the colonies, were offered.

Growth of the project required a considerable enlargement of facilities after six years, and at that time a zoölogiel laboratory, under a separate director, was established in connection with the Institut. Instruction in, and study of the protozoal diseases of animals, was recognized from the beginning, as important for the proper understanding of similar diseases of man. A second enlargement was required only ten years after the founding of the Institut, its growth having been more rapid than that of either of the English schools.

A large, new building, a new hospital, and an animal house, standing near together, were constructed at that time. The main building had 158 rooms, of which 45 were laboratories providing accommodation for 103 workers. The hospital had space for 60 or 70 beds, of which 40 to 50 were in use in 1914.

The scientific staff consisted, in 1914, of a director and six associates, four helpers, four physicians of the Colonial Service, one assistant physician, two medical practitioners, and one volunteer worker.

The animal house provided ample accommodation for horses and cattle, as well as for monkeys and the smaller laboratory animals.

A school of tropical medicine has been started recently at Rotterdam. It provides a course for

physicians proceeding to the colonies, and another for medical students.

In Brussels, too, there is a school of tropical medicine, which was started a few years ago. One of its objects is to train medical men for service in the Belgian Congo. This school has a very fine collection of tropical material in its museum.

Although it might seem logical to establish schools of tropical medicine in the tropics, by preference, no such school has, until very recently, been opened. On the contrary, the older and best-known schools are in northern latitudes.

There are several reasons for conducting teaching of tropical medicine in temperate regions. First: more work can be done with less effort where the climate is favorable; second: wherever the school may be situated, much of the material used for laboratory instruction must, in any case, be brought from distant places, because there is no single locality in which are found all the diseases to be studied; third: a school of tropical medicine which is so situated that it can obtain the cooperation of a great variety of highly trained medical specialists, such as are gathered together only at the leading schools of medicine, can offer, at reasonable expense, a far more attractive course to its students than would otherwise be possible.

A pamphlet has just come to hand announcing the establishment of a school of tropical medicine at Calcutta. This school owes its existence to Sir Leonard Rogers, who, for a period of ten years, has been working for its establishment. This school is to be staffed by a director and assistant director, nine professors, eight assistant professors, and several lecturers and assistants. In addition to its teaching, the school will conduct research in six fields of tropical medicine, under the direction of different men appointed especially for the work in each of these fields.

It is understood that another school on similar lines is being organized in Bombay.

In the United States, for some years, lecture courses in tropical medicine have been given at a number of centers of medical instruction, and three attempts have been made to establish schools of tropical medicine. Of these efforts, that of Harvard University has met with by far the greatest degree of success.

This school was inaugurated in 1913, under the direction of Dr. Richard P. Strong, and has been continuously in operation since that time. It has given instruction to officers of the Army, the Navy, and the Public Health Service, as well as to private physicians of this and of many other countries. A number of important expeditions for research in tropical countries have likewise been organized by the school.

However, the need has been felt for a station in the tropics where scientific work in the subject requiring a tropical environment for its successful prosecution could be carried on continuously and where students of the school could obtain a wider practical experience in the diagnosis and treatment of tropical diseases. Through an affiliation with the Gorgas Memorial Institute, soon to be established at Panama, it seems likely that this need of the Harvard School will be met in the near future.

A Service of Tropical Disease has been inaugurated at the Boston City Hospital, with the object of providing a center for the diagnosis and treatment of tropical diseases, and this Service is likewise affiliated with the School for Tropical Medicine, enabling it to get into direct touch with patients, and to obtain material for study here in Boston.

There being, in this country, no other center offering instruction in tropical medicine, such as is provided at Harvard, and no other hospital service in the United States devoting itself exclusively to tropical disease, it may not be too much to hope that Boston will become recognized as a center for the study and treatment of tropical disease, and that it may attract patients from all over the country, as it already attracts students of tropical medicine.

Situated, as it is, in about the same latitude as Rome, Boston is much nearer to the tropics than are the schools of England or of Europe.

With regard to the expected development of foreign commerce, both national and local, the prospects for rejuvenation of our merchant marine, and the closer and more frequent contacts with tropical countries, which will inevitably result, it would seem that the demand for instruction in tropical medicine must increase, and that the necessity for providing for it adequately, in this country, will become more widely recognized than it is today.

CONSTRUCTIVE ACTION BY THE AMERICAN MEDICAL ASSOCIATION.

At a symposium on the A. M. A., before the North Side Branch of the Chicago Medical Society, February 2, 1922, Dr. Horace M. Brown of Milwaukee, President-Elect of the Tri-State District Medical Association, spoke of the unrest and dissatisfaction in the medical profession due, as he thought, to indifference of the officials of state societies in looking after the interests of the general practitioner. He elaborated the difficulties encountered by the young practitioner and blames the clinical groups in hospitals for the control of cases, leaving very little for the unattached doctor. He also claims that the emotionalism of the day, as shown by the activities of the epicene (under the definition of the fat-thighed man

and skinny hipped woman), has antagonized medical practice by propaganda for reform and uplift theories, so that the young man is advised to enjoy the "beauty of service" without expectation of material reward. The result is that young men are not joining the medical societies but rather floundering about in a limited and unproductive field.

The next subject considered is the dissatisfaction with the A. M. A. He contends that the rank and file of the profession feel that they are neglected by the A. M. A.; that the delegates do not serve the state or county medical societies or the individual members; and after spending all this time in presenting his impressions of the attitude of the members of the profession, he leaves the subject with the request that Dr. Alexander R. Craig, Secretary of the A. M. A., should answer and explain how the A. M. A. "can utilize its enormous influence for the benefit of its more humble but component members." Dr. Craig's reply is not printed in full, but the abstract seems to show that he simply gave a history of the Association and explained the functions of the various councils, the House of Delegates, and the work of the Board of Trustees.

While it is impracticable for the A. M. A. to meet the detailed difficulties of the isolated practitioner, desirable as that might be, this JOURNAL would like to suggest that the larger questions of those policies relating to medicine could be more efficiently dealt with than has been the custom heretofore. Taking the Shepard-Towner bill as an example, although the organ of the A. M. A. did publish some criticisms of the bill, the complete analyses of all features of this measure appeared much more fully in lay publications, and the attitude of the *Journal of the A. M. A.* did not seem to be so definite as might have been expected. This bill is an illustration of the possibilities inherent in some forms of legislation which may affect public health and the practice of medicine. Other bills and measures affecting medical practice have been advocated in the past which have been important, and more schemes will be presented in the future. The A. M. A. could be made one of the most powerful agencies by and through which legislative bodies could be studied. Our law-makers really desire information relating to benefits and dangers of measures presented as well as to the political effects of their decisions. They are entitled to respect in so far as they are honest servants of the people, but they should not be left without all pertinent information. The A. M. A. could present the highest type of information on all matters relating to public health and the maintenance of efficient medical service.

To this end the A. M. A. should establish a committee composed of representatives from

all the States. This body should be paid a reasonable compensation for time given, and should study proposed legislation, decide upon a course of action and with the dignity and power of the Association behind it, tell Congress what should or should not be done.

There is very little medical organization today outside of scientific societies, but we ought to provide the Government with expert authoritative advice. Until we do this, we should not whine and sulk because the people do not recognize the inestimable value of scientific medicine and the public service of men trained in medicine.

If this course had been pursued we might not now be subject to the humiliating requirements of the Harrison Act. If we had half the organization and determination of labor unions, the unjust tax and restrictions imposed by this law could be modified even at this late day.

THE ADDRESS OF THE DEAN OF THE UNIVERSITY OF MICHIGAN MEDICAL SCHOOL.

ON September 27, 1921, Hugh Cabot, then newly appointed Dean of the Medical School of the University of Michigan, spoke to the students and professors of the school on "Some Problems in Medical Education as they Concern the University of Michigan."

Dr. Cabot began his address by referring to the Medical School as a monument to the foresight and ability of its former Dean, Dr. Victor Vaughan. He then discussed the teaching policy of the school in its three great divisions: (1) the teaching of undergraduates; (2) the teaching of graduate physicians and the advancement of the boundaries of medical knowledge; (3) the teaching of the public in matters of public health and health policy, and assisting in working out the relation of physicians and hospitals to the people of the State.

Dr. Cabot, in his discussion of the teaching of undergraduates, dealt entirely with the question of full-time vs. part-time instruction. He pointed out that there has been a failure to draw a distinction between the application of the principle of full-time teaching to medical schools situated in large cities, and to those in small cities. Part-time teaching is particularly unsatisfactory, he believes, in the latter. He insists that instructors must be men of experience, both in the science and in the art of medicine, and says that the greatest obstacle in obtaining such men is financial. This difficulty can be overcome, at least in part, by utilizing the legitimate income of the hospital.

In discussing the relation of the medical school to the public health, Dr. Cabot states his belief that no new departure in the form of

"State medicine" can be successful which takes from the patient his right to choose his own doctor, or which will result in a deterioration of the standing of the medical profession in the community.

PSYCHOANALYSIS.

To writers of papers for medical journals the contribution by Dr. J. F. W. Meagher should be of interest because of the precision in his statements, careful résumé and theory of Psychoanalysis. There is value in a dispassionate and concise presentation of a writer's work when it conveys information which can be easily acquired.

The subject matter should interest the general reader although the quality of the conclusions and implied advice can best be estimated by experts.

NEWS ITEMS.

GIFT TO ESTABLISH CANCER FIELD SERVICE.—At the annual meeting of the American Society for the Control of Cancer, held in New York on February 24, announcement was made of a grant of \$26,750 by the Commonwealth Fund of New York City to establish a field service in this country and Canada, to spread information regarding cancer.—*New York Medical Journal*.

APPOINTMENTS TO THE MEDICAL FACULTY OF COLUMBIA UNIVERSITY.—Dr. Horatio B. Williams has been appointed Dalton professor of physiology in the School of Medicine, Columbia University. Dr. Williams has been chairman of the National Research Council Committee on Research Methods and Technic in Physics since 1920. Dr. Walter W. Palmer, Bard professor of the practice of medicine, has been made a member of the Administrative Board of the Institute of Cancer Research, to serve until June 30, 1924.—*New York Medical Journal*.

QUACKERY IN GERMANY.—According to the Berlin correspondent of the *New York Herald*, quack physicians are over-running Germany and qualified doctors are demanding that the activities of these quacks be stopped by legislation. It is pointed out that during the period in which Germany's population increased by six per cent. the quacks increased 600 per cent. The correspondent says statistics just published show that there are more than 36,000 physicians in unoccupied Germany, against something more than 34,000 in all Germany in 1913, at which time there were about five physicians to every 10,000 inhabitants; now there are six.

The number of women physicians, he says, has doubled in eight years.—*New York Medical Journal*.

DR. FISH PLEADS NOLO AND PAYS FINE OF \$25.—Boston, March 14.—Dr. Ralph C. Fish of Worcester, who was indicted last fall on a charge of selling 62 grains of morphine between July, 1918, and September, 1921, pleaded nolo today in Central Court and was fined \$25 by Judge Morris. It was alleged that Dr. Fish failed to keep a record of his sales as required by law.—*Worcester Telegram*.

THE next meeting of the Advisory Health Council of the New England Division of the American Red Cross will be held May 22 instead of May 17, as previously announced.

A DEMONSTRATION clinical meeting was held at the Beverly Hospital Tuesday, March 21, at 4 P. M. Interesting cases were shown and discussion followed.

BANQUET TO CHICAGO'S RETIRING HEALTH COMMISSIONER.—On Monday, March 6, a banquet was tendered to Dr. John Dill Robinson, Commissioner of Health of Chicago, by the employees of the department. There was a reception, previous to the banquet, which was attended by over 1000 persons. Dr. Robinson is succeeded by Dr. Herman N. Bundesen.

THE DORCHESTER MEDICAL SOCIETY.—A meeting of the Dorchester Medical Society was held at the Municipal Building, Columbia Road, Dorchester, on Wednesday, March 15. Dr. William C. Emery presided. A large number of members attended.

Dr. Miner H. A. Evans read a paper on the "Mental Attitudes of the Neurotic Patient." Only those cases of neurosis were included that were not due to toxins or physical disorders. He described the reasoning of the neurotic patients, their attitude toward themselves, their families and the doctor. He also discussed the usual attitude of the family and the doctor to the patient.

Dr. Evans then went into detail concerning the treatment, and very entertainingly showed why the "doctors of other cults" had such success with this type of patient. He showed how to keep the confidence of the neurotic and how to secure a cure, almost without their knowledge of the method used.

Many relevant questions were answered by Dr. Evans, and the evening ended with the usual collation.

JOSEPH I. GROVER, M.D.

THE WASHINGTON PUBLIC HEALTH CONFERENCE.—Last week a conference under the aus-

pices of the United States Public Health Service was held in Washington. Representatives of schools of public health, medical schools and men actively engaged in public health work attended. The subjects for consideration were: "The Future of Public Health in the United States" and "The Education of Sanitarians."

The names of the following Massachusetts men appeared on the program: Dr. Eugene R. Kelley, Dr. David L. Edsall, Dr. Milton J. Rosenau and Professor George C. Whipple.

The addresses will be printed and can be read.

UNITED HOSPITAL FUND OF NEW YORK, HOSPITAL INFORMATION BUREAU, 15 WEST 43RD STREET.—Following the survey of hospital work in New York City made by the Public Health Committee of the New York Academy of Medicine and the disclosed need of a central agency of information about hospitals, the United Hospital Fund organized such a Bureau, with offices at 15 West 43rd Street. The aims of this Bureau are to keep in touch with hospital work and progress in New York City; to furnish information to all interested with regard to administration, record-keeping and other facts concerning hospital work, organization and facilities; to study and make known the hospital needs of the city; to prepare exhibits; to maintain a library of hospital reports and statistics, also of record forms and blanks used in the several departments of the hospitals; to publish annually, or more often, information concerning hospitals; to promote uniformity in hospital reporting; and, whenever called upon by the hospitals, to assist in such administrative and efficiency studies as would be of value to the hospitals, municipal and private. The committee in charge of the Bureau is as follows: Mr. Francis Smyth, chairman, trustee of the United Hospital Fund; Dr. W. Gilman Thompson, president of the Reconstruction Hospital and trustee of the New York Academy of Medicine; Dr. S. S. Goldwater, trustee of the United Hospital Fund, director of Mt. Sinai Hospital, formerly Commissioner of Health; Mr. Julius A. Stursberg, trustee of the United Hospital Fund and also of the Lenox Hill Hospital; Mr. Henry C. Wright, hospital consultant and trustee of Bellevue and allied hospitals. Dr. E. H. Lewinski-Corwin, executive secretary of the Public Health Committee of the New York Academy of Medicine, has been appointed director of the Bureau.

FOR week ending March 18, the number of deaths reported in Boston was 302, against 233 last year, with a rate of 20.61. There were 55 deaths under one year of age, against 36 last year.

The number of cases of principal reportable diseases were: Diphtheria, 48; scarlet fever, 55;

measles, 125; whooping-cough, 6; tuberculosis, 57. Included in the above were the following cases of non-residents: Diphtheria, 1; scarlet fever, 5; tuberculosis, 4.

Total deaths from these diseases were: Diphtheria, 1; scarlet fever, 1; whooping-cough, 2; tuberculosis, 14. Included in the above were the following cases of non-residents: Tuberculosis, 2.

HAMPSHIRE DISTRICT MEDICAL SOCIETY.—The last regular meeting was held at Boyden's Restaurant, Northampton. Dr. W. O. Wilder of Springfield gave a lecture on "Vesical Obstructions Other Than Those Caused by Neoplasms of the Prostate," illustrated by lantern slides. Dinner was served after the meeting.

The Northampton Board of Health clinic for the immunization of children against diphtheria by inoculations with toxin-antitoxin is in successful operation twice a week, under the direction of Dr. J. G. Hanson, School Physician. Approximately 4000 children have been treated, which represents a greater part of the school population of Northampton.

CANCER.—Morley Roberts, of London, suggests that the final cause of cancer may consist in some failure of constant stimulation by the anterior pituitary in subjects exposed to perpetual irritations, while sarcoma may be due to anterior dyspituitarism.

THE ETHER CONTROVERSY.—*The Southern Medical Journal* has recently published an article in which the contention is made that William T. G. Morton was not the discoverer of ether narcosis, and that through discreditable methods he secured the recognition which should have been given to Crawford W. Long. The suggestion is made that those in charge of the Hall of Fame should review all the evidence and right an alleged wrong.

The Kentucky Medical Journal prints the article also.

The present generation has very little knowledge of the bitter controversy waged over the claims of Morton, Jackson, Wells, and Long. The contention is founded on the claim that Long removed a tumor from the neck of James Venable while Venable was under the influence of ether, in 1842, as well as operations on several other patients. However that may be, the glory can never be taken from the Massachusetts General Hospital, for the use of ether was endorsed by the staff of that hospital, and thus became recognized by the profession.

THE THORNDIKE MEMORIAL LABORATORY.—This building is now being erected on the grounds of the Boston City Hospital, and will

be completed this year. Dr. Francis Weld Peabody has been appointed director of this laboratory, which will be devoted mainly to research work.

THE BRITISH MEDICAL RESEARCH COUNCIL reports that because of the reduction of its resources, prosecution of researches relating to the advancement of preventive or curative medicine will have to be curtailed. It was expected that the activities of this council would have developed valuable knowledge relating to the cure and prevention of many diseases.

WORCESTER DISTRICT MEDICAL SOCIETY.

THE regular meeting of the Worcester District Medical Society was held Wednesday, March 8, at 8.15 p. m., in the University Club rooms, 377 Main Street, Worcester, Mass.

The program was as follows:

"Epidermophytosis," by Dr. Charles J. White of Boston.

"The Laboratory Investigation of Epidermophytosis," by Dr. Arthur W. Greenwood of Boston.

"The Late Syphilitic and Therapeutic Problems," by Dr. George A. Dix of Worcester.

After the meeting refreshments were served by the medical members of the University Club.

Owing to the fact that it was hard to hear the papers as read, a synopsis of the clinical papers by Dr. White and Dr. Dix is given below at some length.

EPIDERMOPHYTOSIS.

By CHARLES J. WHITE, M.D.

WHAT is now spoken of as epidermophytosis has been described in parts and under various names since the days of Hebra. In 1907 Sabaraud separated the causative fungus from the trichophyton. But we now know that more than one organism is responsible for the disease. We also know that it has several distinct clinical manifestations, and affects many parts of the body. Recent investigation is showing their relationship.

The macular type is most often seen on the upper, inner surface of the thighs, where it has long been known as *eczema marginatum*, or red flap. It occurs more often in the male, extending from the top of the thigh down to the level of the relaxed scrotum in the form of a semicircle. But it may extend by new foci even down to the knee. It is brick red in color, little if at all elevated, often with delicate

scaling, and seldom shows any tendency to central clearing. Overstimulation may alter its appearance. It may extend back along the perineum and into the intergluteal fold, as well as the lateral ones, involve the genitals or invade the pubes. But it shows little or no tendency to spread anteriorly on the thigh. On the scrotum it may produce a raw condition and large, dome-shaped, dull red papules. It never involves the hair. When in the axillae, it is much more inflammatory and its lesions more elevated. It may occur on any of the plane surfaces of the body.

The vesicular type occurs on the hands and feet, particularly the palms, soles and lateral surfaces of the fingers, which are often its starting point. The vesicles are deep, grayish in color, often with a central bluish spot. They are seldom inflammatory. Rarely a superficial inflammatory type is seen. In drying they may leave collarettes, or the whole surface may become exfoliative. On the soles, especially, clusters in the arch may become purulent, and be hard to distinguish from infectious eczematoid dermatitis. Hyperhidrosis is often a symptom of the vesicular type.

The macerated type occurs in the folds where apposing surfaces meet. It is best seen between the toes, particularly the fourth and fifth, where the skin takes on a sodden, parboiled appearance over an underlying reddish surface. Often one finds a peculiar lardaceous plug buried in the web. This is of great value in diagnosis. This condition seldom causes noticeable odor or inflammation. It is often seen in the intergluteal fold, and occasionally in others.

The hypertrophic type is probably a secondary manifestation, one form of which occurs diffusely on the palms and soles, and leads to some trouble in diagnosis. Another form is seen on the soles as well-defined, translucent, orange-yellow calluses occurring on points of pressure. Rarely one sees areas of typical lichenification associated with characteristic patches of the disease elsewhere. Recently attention has been sharply drawn to the occurrence of a complicating trichophytid.

The whole story of its etiology is not known. The use of dirty clothes, particularly woolen articles, which cannot be boiled; athletic clothes, which are neglected and worn only occasionally, are certainly a factor, as is the use of certain leather articles. The modern laundry appears to play a part.

No one treatment meets all the requirements. Ointments do best in the macular type, but no one is wholly satisfactory. Potass. permanganate sol. 1:5000 or aq. sol. sat. of pieric acid seems to do well in the vesicular type. Sterilization of clothing is very important. It rarely passes from one member of a family to another.

THE LATE SYPHILITIC AS A THERAPEUTIC PROBLEM.

By GEORGE A. DIX, M.D.

THE groundwork of late syphilis is laid very early in the disease, so that treatment at that time must be so directed that if it fails of complete cure, it will help build up his resistance against the disease in its later stages. When the disease appears in otherwise healthy young persons, arsphenamine is the drug of choice, and it can generally be used promptly and intensively, with the necessary adjustment to individual requirements. But its injudicious use at this time may endanger the patient's future by preventing or altering his natural resistance, which should be his greatest protection in late syphilis.

But an early case in a subnormal or diseased patient theoretically belongs with the late type; but practically he is a poorer therapeutic risk, because his physical infirmities are of non-specific origin, and so more apt to react unfavorably to specific treatment.

But the late case presents a different therapeutic problem. We can no longer entertain the same hope of complete cure. We are now less concerned with the disease as a whole as with its effect on the structures whose functional integrity is necessary to life and the problem of living. We should try to gauge as accurately as possible what the insurance people call his expectation of life, and try to estimate what measures will do most to help him realize it. Such appraisal of his physical condition calls for a complete and searching physical examination. In this we often need the help of our colleagues in other special fields of medicine.

When we have defined his margin of safety as well as we can, it is important to try to adjust our treatment to a workable basis which will strike a balance between his physical handicaps and his therapeutic needs.

Generally both arsphenamine and mercury are necessary, but arsphenamine should seldom be used with anything like the intensity that it is earlier. There are few cases in which a preparatory course of mercury or mixed treatment is not good treatment, its duration to be governed by the importance of the involved organ, the degree of activity and the damage done. When arsphenamine is started, the size of the dose and frequency of injection should conform to our estimate of his tolerance, and the mercurial intervals lengthened. He probably needs about the same amount as the early case, but extended over a longer period, and in more moderate dosage. It is necessary to respect his tolerance because he may need treatment for the remainder of his life.

His resistance is now the chief consideration,

and he needs the benefit of every collateral expedient to promote it, and the removal, if possible, of every complication which might serve to retard progress. Such serious accidents as the Herxheimer reaction and exfoliative dermatitis must be kept in mind and guarded against. The liver and kidneys need particular and constant attention.

It is often hard to know when to stop treatment and rely on observation and regulation of habits, which perhaps, after all, play the chief rôle in the solution of the problem. The relief of symptoms is now much more important than earlier, and is often a better guide to the effect of our treatment than is the temporary reversal of the Wasserman reaction. His future is perhaps safer if, like the tuberculous patient, he be advised in terms of arrest, of readjustment of habits to capacity, of the need of frequent examinations and of possible relapses.

Miscellany.

LABORATORY WORKERS CONTRACT TULARAEMIA.

All six of the laboratory workers of the United States Public Health Service who have been studying tularaemia, a disabling sickness of man which has been known, particularly in Utah, for the last five years, have contracted the disease, two of them being infected in the laboratory in Utah and the other four in the Hygienic Laboratory in Washington. Such a record of morbidity among investigators of a disease is probably unique in the history of experimental medicine.

Two of these workers are physicians, one is a highly trained scientist, and the others are experienced laboratory assistants. One of them contracted the disease twice, once in the laboratory in Utah and again, two years and five months later, in the laboratory in Washington.

In these workers the disease began with a high fever, lasting about three weeks, and was followed by two months of convalescence. The disease has few fatalities, its chief interest arising from the long period of illness which it causes in midsummer, when the farmers of Utah are busily engaged in cutting alfalfa and plowing sugar beets.

The studies into the cause and transmission of the disease show it to be due to a germ, *Bacterium tularense*, which is conveyed by six different insects: the blood-sucking fly, *Chrysops distalis*; the stable fly, *Stomoxys calcitrans*; the bedbug, *Cimex lectularius*; the squirrel flea, *Ceratophyllus aentus*; the rabbit louse, *Haemodipsus ventricosus*; and the mouse louse, *Polyplox serratus*. Only the first four of these are

known to bite man. It appears possible that the germ may also enter through unbroken skin; for instance, that of the hands.—*United States Public Health Service.*

Mr. Editor:

I have your letter in regard to *B. tularense* infection. *B. tularense* was isolated by McCoy from ground squirrels in California some years ago. In these animals it produces a plague-like disease. More recently, in Utah, there has been a disease of man prevalent in certain rural districts. This disease is characterized by fever lasting for several weeks and by swelling of the lymph glands in the neighborhood of the bite of the deer-fly. It is believed that the infection results from the bite of these flies.

In the Public Health Reports, Vol. 34, No. 37, September 12, 1919, Dr. Edward Francis reports animal inoculations made from a case of deer-fly fever. As a result of these inoculations he obtained an organism which he believed to be identical with the *B. tularense* of McCoy. Consequently, it is supposed that deer-fly fever is caused by *B. tularense*, and it seems probable that it is transmitted by one of the biting flies of the neighborhood. I have not heard of any cases of deer-fly fever occurring outside of Utah, except among laboratory workers studying the disease. The recent issue of the Health News of the Public Health Service reports a number of cases of infection in laboratory workers, and says that recent work seems to show that the disease can be transmitted by a variety of biting insects, including the stable fly, the bed bug, the squirrel flea, and the lice of rabbits and mice.

Yours very truly,

E. C. SHATTUCK,

Assistant Professor of Tropical Medicine.

DR. B. P. CROFT OF GREENFIELD REFUTES STATEMENT IN LOCAL PAPER.

In the issue of February 25, 1922, the *Gazette and Courier* of Greenfield published an editorial compliment of osteopathy, and suggesting, by inference, recognition of chiropractic. Dr. B. P. Croft of Greenfield wrote a letter which appeared March 11, 1922, in the same paper, in which he resents the slurring reflection on physicians who have tried to inform legislators relating to proposed laws which, if enacted, would legalize chiropractic methods. His letter is vigorous and logical, and should have influence with representatives and senators from that part of the State. It is refreshing to find physicians taking active interest in legislative matters.

RÉSUMÉ OF COMMUNICABLE DISEASES FOR MASSACHUSETTS.

FEBRUARY, 1922.

General Prevalence.

There were 12,786 cases of communicable diseases reported for this month as compared with

6,735 cases reported for January. This increase over the number of cases reported last month was due to increased prevalence of measles, influenza, and lobar pneumonia.

Chicken-pox. There were 624 cases of this disease reported for the month. This is less by 200 cases than the total for January.

Diphtheria also showed a lessened incidence, with 790 cases reported, as compared with 911 for last month.

Dog-bite, requiring anti-rabic treatment, decreased to 10 cases for this month.

Encephalitis Lethargica. There were six cases reported for the month.

Epidemic Cerebrospinal Meningitis was reported in eight instances.

German Measles. The reported incidence for the month was 45 cases.

Gonorrhea and Syphilis. Both diseases showed substantial decreases in the reported incidences; totals for the month were 315 for the former and 152 for the latter.

Influenza increased from 135 cases for January to 5,222 cases for this month. This increase in the number of cases was made up by the increased prevalence of this disease in the eastern and central parts of the State. The Connecticut Valley and Berkshire districts escaped almost entirely. The type of influenza as seen this year has been mild in character.

Measles increased from 1,275 cases for January, to 2,062 for this month. The total for February, 1921, was 2,325 cases.

Pneumonia, Lobar, increased from 575 cases for January to 987 cases for this month. This increase has, as in influenza, been made up by reports from eastern and central cities and towns.

Scarlet Fever was reported in about the same number as last month. The total for the month was 951 cases.

Tuberculosis, Pulmonary, was reported in about the usual number, with the reported incidence of 515 cases.

Tuberculosis, other forms, was reported in 64 instances.

Typhoid Fever was reported 31 times. The 31 cases represent 18 scattered cases, and 13 cases in an institution for children.

Whooping-cough. There were 391 cases reported for this month. Total for January was 326.

RARE DISEASES.

Actinomycosis was reported from Brockton, 1.

Anterior Poliomyelitis was reported from Boston, 1; Quincy, 1; Worcester, 2. Total, 4.

Dog-bite, requiring anti-rabic treatment, was reported from Belmont, 2; Billerica, 1; Holyoke, 3; Lexington, 1; Lowell, 4. Total, 11.

Dysentery was reported from Boston, 1.

Encephalitis Lethargica was reported from

Boston, 2; Cambridge, 1; Fall River, 1; Framingham, 1; W. Boylston, 1. Total, 6.

Epidemic Cerebrospinal Meningitis was reported from Belmont, 1; Boston, 1; Falmouth, 1; Holyoke, 1; Leominster, 1; Swampscott, 1; Worcester, 2. Total, 8.

Malaria was reported from Cambridge, 1; Westfield, 1. Total, 2.

Septic Sore Throat was reported from Amherst, 2; Andover, 1; Boston, 4; Clinton, 1; Haverhill, 1; Leominster, 2; Northampton, 1; Sharon, 1; Weston, 1. Total, 14.

Tetanus was reported from Boston, 1; Peabody, 1; Upton, 1. Total, 3.

Trachoma was reported from Boston, 2; Brockton, 1; Cambridge, 2; Norwood, 1. Total, 6.

Trichinosis was reported from Boston, 5; Stoughton, 1. Total, 6.

RABIES.

THE following illustrates the pernicious activity of ignorant people. This letter was sent to the parents of a child bitten by a rabid animal:

"Boston, Feb. 25, 1922.

"Dear Madam:—

"Take the advice of a well-wisher, who writes you simply from humanitarian reasons. Do NOT allow your child, who was recently bitten, to be subjected to the terrible dangers of the Pasteur treatment.

"I have made a study of medical matters and have looked into the records of the Pasteur Institute, and know that their so-called 'successes' in cases of dog-bite are, in reality, a record of dismal failure, attended in almost every case by terrible results to the victims (i.e., the patients).

"Instead of taking such a risk, give the child a safe, wholesome treatment, which you can probably apply yourself.—a very thorough perspiration, or sweat. This should be repeated a few times. The idea is to make it so thorough as to take all the poison out of the blood. This is no mere theory; it has been well tested, and even in cases where the disease had actually developed, has cured the patient completely.

"Use whatever method you please for inducing the perspiration, only be sure it is thorough. Give plenty of water to drink, but not from a glass dish of any kind. Lobelia tea is good. This is not a patent medicine, but just a dried plant, or herb,—an old, staple, home remedy, which any druggist should keep. But if you cannot get it, it is not essential. If it can be avoided, do not leave the patient alone during sweating process. Some people use the

vapor bath cabinet to induce a free perspiration, but though this is good, it is not always safe, as the patient's heart may not be in perfect condition—and of this you cannot always be sure. The majority of people could take vapor baths with safety, but some people cannot. A person should never be left alone when in a bath cabinet.

"If your doctor is sensible enough to be willing to help you with this mode of treatment, so much the better. If not, and you have never had experience in giving sweats, better get some friend who has had, or a good nurse (preferably trained) to help you. (There are many doctors who, for various reasons, will not advise the sensible and wholesome thing, even though they may know it is the best, especially if there is more money in the other.)

"A thorough and free perspiration, carefully given, is the best method there is for driving poisons out of the system.

"Yours truly,

"GOOD HEALTH."

Obituary.

JAMES WOODS BABCOCK, M.D.

Dr. James Woods Babcock, a former fellow of the Massachusetts Medical Society, one who received his medical education in this State, died at Columbia, S. C., March 3, 1922.

Dr. Babcock was born in Chester, S. C., August 11, 1856, and therefore was 65 years old at the time of his death. He was graduated from Harvard College in 1882, entered Harvard Medical School and served as house officer at the McLean Asylum, then in Somerville. On receiving his M.D. in 1886 he became assistant physician at the McLean Asylum; joined the State medical society, and remained at the asylum until 1891, when he removed to his native city to specialize in mental diseases. He was superintendent and physician to the South Carolina Hospital for the Insane (1891-1914), chairman of the Columbia water and sewer commissions and a member of the Columbia board of health. At one time he was a member of the South Carolina Legislature. In 1905 he received the degree of LL.D. from South Carolina College.

Among his writings may be mentioned "Tuberculosis and Insanity," contributed to the *American Journal of Insanity*; "The Colored Insane," in the *Alienist and Neurologist*; "Development of Charities in South Carolina," in the *News and Courier*, Charleston.

Dr. Babcock was one of the first physicians in the South to recognize pellagra (1907), and was president of the National Association for the Study of Pellagra from 1909 to 1912. From

1915 to his death he was professor of psychiatry in the Medical College of South Carolina. With C. H. Lavinder, M.D., of the United States Public Health Service, he published in 1910 the first treatise on pellagra in the English language.

In 1892 he married Katharine Guion of Lincoln, N. C., who with several daughters survives him.

Correspondence.

THE SCHICK TEST.

Mr. Editor:

The value of the Schick test has been definitely established as an important means of controlling diphtheria. By means of this test every person who is susceptible can be recognized. It is not curative, but is a means to separate the susceptible from the immune, and also of valuable aid in the diagnosis and differential diagnosis of questionable cases. In conjunction with this test, a passive immunity may be established by the use of toxin-antitoxin.

A series of 438 Schick tests was done in the Worcester State Hospital. The object of this series was solely to observe the reaction of the toxin upon adult individuals, on an experimental basis. The results obtained depend entirely upon a standard toxin, careful technic in the injection of this toxin and an accurate observation of all phenomena. The ages of those tested ranged from 20 to 60 years. In almost 66 per cent. the reaction was negative, while in 34 per cent. the reaction was decidedly positive. It was most interesting to note that the greater percentage of negative reactions were in those of more advanced years. Those past 40 years were almost 90 per cent. negative, thus showing that the older individuals have a natural immunity; that is, they have the equivalent of 1/30 minimal lethal dose of anti-toxin, which dose kills a 250-gram guinea pig in four hours. This is the nominal amount to withstand and counteract the activity of diphtheria toxin.

Three of our employees were taken sick with laryngitis. The test was done on them and a positive reaction was observed on all. Cultures and bacteriological examinations showed a presence of diphtheria bacilli. These cases were treated immediately with the ordinary diphtheria antitoxin. They all recovered promptly.

The Schick material used in this series was furnished by the State laboratories.

In preparing the toxin for use, all rules of ordinary asepsis were carried out. The capillary tubes were carefully handled. A small sterilized file was used to file the end of the tube. The broken end was carefully pushed through the neck of the rubber bulb until it punctured the diaphragm within to enter the cavity of the bulb; then the other end of the tube was broken. Carefully holding the bulb between the thumb and middle finger, the index finger was placed on the opening at the large end of the bulb and the toxin was expelled into 10 c.c. of saline. The bottle was then corked and shaken vigorously to dilute the toxin. The same technic was used for preparing the solution to be used as heated toxin. This heated toxin was prepared by heating to 75 degrees Centigrade for 15 minutes.

Great care must be taken to inject the test fluid intradermally and not subcutaneously. To perform this test accurately .1 c.c. of the unheated toxin,

properly diluted, was injected on the flexor surface of the right forearm; the dilution used so that 1/50 of a M.L.D. for 250-gram guinea pig was contained in .1 c.c. sterile saline solution. A like dosage of the heated toxin, properly diluted, was injected on the flexor surface of the left forearm for a control.

The positive reactions were accurately noted, at the site of injection, to appear in from 18 to 48 hours. A definitely defined circumscribed area appears at the point of injection about 3 to 5 times the size of the original. The circumscribed area or spot reaches its maximum redness in the second, and as late as the third day in a few instances. It becomes entirely faded out in almost a week or ten days, and in most cases leaves a pigmented or brownish area, which begins to show some desquamation.

In the pseudo-reaction, it was noted that the small circumscribed redness appeared on the right arm in from eight to twelve hours, not as intense in its redness as in the positive reaction, but its maximum intensity being reached in about 12 to 15 hours, and then fading away from 24 to 36 hours, leaving no pigmentation or desquamation.

The pseudo-negative reaction, spoken of by Abraham Zingher, was also noted in 71 of the cases tested. The circumscribed redness appeared on the right arm, being fairly well marked in from 15 to 18 hours, and its maximal intensity seems to be in 20 to 24 hours. The left arm also shows a reaction similar to that of the right, thus bearing out that heating destroys the toxin but not the autolysed toxin. The pseudo-negative reaction is due to the autolytic enzyme of the diphtheria bacillus, which is also present in the test fluid.

FRANKLIN P. BOUSQUET, M.D.

MEDICAL LIBERTY LEAGUE, INC.

Mr. Editor:

My attention has been called to an article in your paper of March 9, 1922, headed: "The Methods of the Medical Liberty League."

If the circular you quote has been distributed among the members of the Legislature, it has not been so distributed by this League. We know nothing of any such circular and entirely disavow it.

I do not know how you came to ascribe the article in question to the Medical Liberty League, but I feel assured that you will take pleasure in correcting the mistake. It may be that the words "Medical Liberty League" form a part of the title of some other organization, but inasmuch as this League is incorporated under Massachusetts laws as Medical Liberty League, Inc., it would be the natural assumption of your readers that your headline referred to us.

Very truly yours,

HENRY D. NUNN,
Manager, Medical Liberty League, Inc.

THE VOTE ON DR. HUTTON'S PROPOSITION.

SHELburne FALLS, MASS., March 13, 1922.

Mr. Editor:

In the correspondence column of the JOURNAL, dated January 5th, I proposed that names be sent to me, in the way of a vote, with the view of organizing a separate society to look after legislation and the financial and general welfare of ourselves. It may be of interest to some of the readers of the column to know what the result of that vote was.

Briefly, the vote was not overwhelming. It was, nevertheless, generous—in fact, too large for me to answer each one individually, both on account of the time and expense, all of which I would have had to bear myself, so I want to take this opportunity to thank those who answered.

I was afraid, when I made the proposal that the vote would strongly be predominated by the younger

practitioners, who were struggling against adverse conditions peculiar to starting in practice, but I must say that the actual vote did not appear to be that way.

I realized that the personal element would enter largely into the matter, and no doubt it did. I know of many, from reports, that had in mind that every movement should originate from someone holding some responsible position in the Medical Society, and that nothing could come, or had the right to come, from any other quarter, and that the under-fellow was presumptuous indeed if he suggested anything new or tending to protect himself, the public, or his fellows.

Let me say, without digressing further, that so far as I can determine, that the vote was strongly favored by especially the middle-aged and the older practitioners.

Prominent men, faculty staff, older active practitioners, retired men, middle-aged, and younger, expressed their views in favor of such an organization. That is the way the thing has gone so far.

Many have said to me: "Doctor, what is the use of trying to do anything? Nothing has ever been accomplished before. It is impossible to get enough together to do anything. There is too much pulling and yanking this way and that way. The thing will flash up and die down and nothing accomplished—and what is the use?"

I do not altogether agree with that, however. I maintain that all we need is a personality with sufficient pep, and a well determined policy, open and above-board, and that we can put it over.

My own personal views are that we all, every one of us, have things that we would like most dearly to see remedied; that five thousand and plus physicians, united, would be a world-power for good. I think it should be emphasized that anyone joining this society should go in with their eyes wide open to the fact that it is not going to be any child's play.

I further believe that this power should first be placed solidly behind the State Medical Society, so far as they want to take the lead; that there should be no conflict of interests.

I furthermore fully believe that with such a solid backing behind them, or behind the organization, that more could be accomplished in six months than has ever been accomplished before in a similar number of years.

I furthermore believe that an organization of this nature should not be permanent. One good year's existence would straighten things out emphatically. I am not in favor of any organization that would lapse into a condition where the secretary would be crowned for life, and hold by divine right. The same applies to other officers. Office should be held just so long as results are being gained, and no longer.

I would like to get your vote, Mr. Editor. I understand you are personally in favor.

The committee on legislation has been constantly asking for unity behind them; they have been working hard under great difficulties. Now let us get behind them for a while, full force, give them strength and give them something new to think about and work for, and let us see just what can be accomplished in a short, sweet time.

Fraternally yours,

W. A. HUTTON.

REGISTRY OF BONE SARCOMA.

227 Beacon Street.

BOSTON, MASS., February 27, 1922.

Mr. Editor:

I wonder if the result of my letter in your issue of February 2nd would interest your readers? My letter was intended to enable the Registry of Bone

Sarcoma to find out how many cases of Bone Sarcoma were known to be living in Massachusetts, whether cured, under treatment, or moribund. It suggested that if every one of the 5494 physicians in this State would drop me a postal stating whether or not he knew of a case, we should have at once the best statistics ever obtained on the frequency of this disease.

In reply I have had, up to date, *only seventeen negative and two positive answers*. Is this because your Journal is not read or because of the indifference of the medical profession as to whether the frequency of bone sarcoma is known or not?

Perhaps your readers may be interested in the human nature problem involved, even if they are indifferent as regards the advance of medical science. Your editorial board may also be interested to know what proportion of your 3546 subscribers in Massachusetts read the Journal thoroughly. I therefore enclose a diagram which aims to analyze the problem.

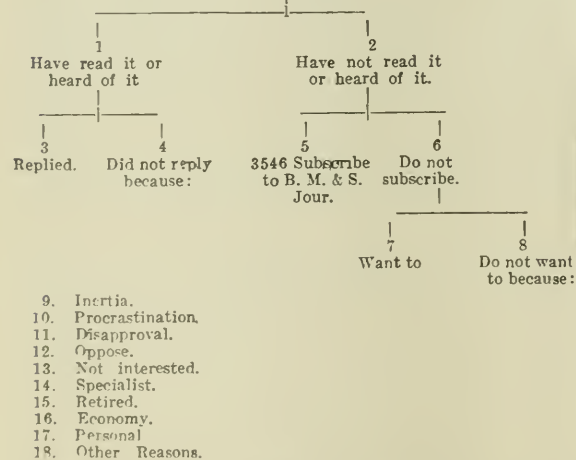
If you are interested enough to publish this letter and diagram in three successive issues, I will undertake to send a return postal to every physician listed, as living in Massachusetts, in the Directory of the American Medical Association, who has not dropped me a postal a week after the third issue. On one-half of the postal I will have this diagram printed: the other half will have the return address to me. Eventually you can publish the diagram with the numbers following each heading. This will give the facts to the few interested in bone sarcoma and the many interested in the *Boston Medical & Surgical Journal*, and in the psychology of the medical profession.

Sincerely,

E. A. CODMAN, M.D.

5495 PHYSICIANS IN MASSACHUSETTS.

LETTER ON REGISTRY OF BONE SARCOMA IN BOSTON MEDICAL & SURGICAL JOURNAL, FEBRUARY 2, 1922.



Please reply to this by consecutive numbers, e.g., 1—4—15 means "I have read or heard of the Registry and did not reply because I have retired from practice"; 2—6—8—16 means "I have not read nor heard about the Registry of Bone Sarcoma and do not subscribe to the *Boston Medical and Surgical Journal* from motives of economy."

[NOTE.—Dr. Codman states that he has received forty reports since the publication of his first letter—one positive and thirty-nine negative. The profession is urged to assist in the compilation of facts asked for.—Editor.]

THE BUSINESS SIDE OF X-RAY DIAGNOSIS AND TREATMENT.

Mr. Editor:

In a recent issue of the *Medical Review of Reviews*, Dr. Solland discussed the business side of radium treatment. May I, for the benefit of the radiologist and of the physician, discuss the business side of x-ray diagnosis and treatment?

It seems, somehow, utterly impossible to convince the average patient—not to speak of the average doctor—that the average fees charged by most radiologists are not only reasonable, but extremely moderate. During the six years that I have specialized in radiology it seems that scarcely a week has gone by that I have not been called upon to explain, either to some irate patient or to some doctor, why the bill for some x-ray examination or treatment was not excessive. Many of these bills either have not been paid at all, or I have had to more or less gracefully reduce my original fee. My original fee has never yet, to my mind, been excessive. This needless and irritating bickering about x-ray fees happens not only in my office and private patient work, but in the hospitals where I am radiologist. Every radiologist, even the best known, seems to have the same trouble.

It has seemed to me many times that, perhaps, if the facts about x-ray work, the expenses and hazards connected with it, were fully explained, doctors in general might understand that our fees are just, and would be in a position to explain to their patients the exact situation. Patients are not paying a radiologist for pictures or plates: they are paying a consultant for an expert opinion or diagnosis.

We are considering the problem as it concerns the radiologist, that is, the accredited, ethical physician who has made a special study of radiology, and who devotes himself exclusively to x-ray diagnosis and treatment. We are not considering the so-called commercial x-ray laboratories—and by commercial x-ray laboratories I mean the x-ray laboratories run by laymen, that have no physician in charge to make diagnoses or to attend to the treatment work. Many so-called commercial laboratories in New York city turn out a vast quantity of x-ray work, charging a very minimum fee, but no diagnosis is sent with the radiographs. Such laboratories, apparently, fill a very definite need in so far as dental radiography is concerned, since many dentists prefer to interpret their own radiographs, and yet do not desire, or are not financially able, to install their own x-ray equipment. The majority of dentists who own their own x-ray machines are no better trained to take radiographs or to interpret them than are these much criticized, so-called commercial laboratories. Yet the average dentist who installs a little dental x-ray machine in his office can get larger fees for his x-ray "pictures" than can the x-ray specialist. Many dentists also take sinus "pictures" and get good fees for such work.

As for the work done by these so-called commercial laboratories, the radiographs are usually very clear and beautiful, and are taken by technicians who have had training and experience under competent radiologists. So long as hospitals, approved by physicians and by the A.M.A., employ men and women who are not physicians and who may not even be nurses, or who have had no medical training or experience whatsoever, to take and interpret radiographs, the commercial laboratory will exist. So long, too, as the average hospital expects a graduate physician who has specialized in x-ray work, to accept and hold a position as radiologist on a small salary basis, without adequate assistance, with limited equipment, and without an appointment on the regular staff of the hospital, the average small hospital of, say, 100 beds, will continue to employ the services of technicians who will make diagnoses or give treatment. Many of these hospitals expect that the physician or surgeon who sends in the case for x-ray will be able to interpret the radiographs, but the physician or surgeon, who has the best interests of his patient at heart, will admit that without special study, which the majority of them have not had, they are absolutely unable to interpret the radiographs and establish even a tentative diagnosis.

But we are not discussing technicians nor commercial laboratories except as a preliminary to the

statement that these are both a cause and a result of the difficulties of the financial side of radiology. To be explicit, technicians and commercial laboratories exist because hospitals underpay their x-ray physicians or insist upon a salary basis, and not a commission basis, of compensation. When a hospital cannot get a physician to accept a position as radiologist because of the small salary, the hospital hires a technician to take charge of the x-ray laboratory. Since technicians are allowed to make diagnoses and to do treatment work within the hospital walls, they rightly argue they can do so outside of hospital walls, and therefore start their laboratories. The average small hospital cannot afford to pay a competent radiologist because the average patient refuses to pay a reasonable fee for x-ray work. This is partly due to the fact that they do not understand the actual expense involved in x-ray work.

This lack of knowledge of the actual expense involved in x-ray diagnosis and treatment is partly due to the fact that our large city and state institutions and large industrial corporations, that have installed x-ray laboratories of their own, have established such small charges or fees for radiographs that an erroneous impression of the actual expense involved is engendered in the minds of the patients and their physicians.

When a city or a state hospital, or a large industrial concern, establishes a fee list ranging from 10 cents to \$10 for an x-ray diagnosis, such fees do not cover the actual cost of the work done. Any deficit in such institutions is made up in some other way. Radiologists have figured that, including overhead expenses, light, heat, power, depreciation of equipment, plates, chemicals, etc., the actual cost per plate is from \$2 to \$3. Of course, the actual cost per plate varies with the number of patients, and the number of plates used per patient. The greater the number of plates taken in a week, a month, or a year, the smaller the actual cost per plate. But when a big industrial plant, which employs over a thousand employees, states that it does x-ray work at cost for its employees and their families, and charges 10 cents for a dental film, takes 8 radiographs for one patient for 75 cents, charges 25 cents for an x-ray of the extremities, and 50 cents for sinus "pictures," it is giving the employees x-rays far below actual cost and ruining the value of an x-ray diagnosis in the mind of the general public.

As Dr. Soiland aptly says, the personal equation should govern each professional contact, but the very nature of our services should demand a fee consistent with its full and intrinsic value.

Kindly and wholesome charity should not be lost sight of, and it is our duty, to the limit of our capacity, to treat all those who seek our help, regardless whether they possess sufficient worldly goods for adequate remuneration; but why should an industrial plant, with such a large number of employees, supply x-rays to their employees and their families at such ridiculously low cost that the fee actually does not cover the cost of the material used? Why, if the fee does not cover the cost, not give the employees the advantage of free x-ray examinations, rather than establish among so large a body of people so erroneous an impression of the cost of x-ray work? Why, above all, should relatives of these employees also get the advantage of these ridiculously low rates? At least such a corporation should, to be fair and square, explicitly explain that the fee charged only partially covers the cost.

A dentist, or a physician, dabbling in x-ray work does not realize the actual expense that a radiologist is confronted with. A radiologist, to do good work, must be prepared to take care of any kind of a case. He must have the best machinery money can buy and the most powerful. He must have extra x-ray tubes

(at \$125 apiece), good screens, cones, lead shields and protective devices, treatment and other accessories, a Bucky diaphragm and other things too numerous to mention. He must figure that expenses for rent, heat, light, power, chemicals and supplies will cost him probably not less than \$300 a month. If he must have an assistant, that is extra expense. He must figure on the expense of building a dark room, of lead lining the walls and the floor, and probably, also, the ceiling of his x-ray room; of installing the plumbing for his developing tanks, and the expense of the installation of the transformer, since it must have a special feed wire. And after the equipment is installed the radiologist is asked to compete with 10-cent fees for dental radiographs and \$10 fees for a complete gastro-intestinal examination. And while a hospital may ethically advertise its consultation, including its x-ray fees, it is still hardly ethical for a radiologist to send out a fee table to physicians or dentists.

If a radiologist may be considered a consultant, how can a doctor or a patient expect a radiologist to make a complete gastro-intestinal examination for a patient, who can afford to pay, in competition with the fees asked at some of our big hospitals and consultation clinics and industrial concerns? Such patients are actually receiving charity, yet would resent any implication that they were receiving charity, because no one has ever proven to them that they are receiving charity. A large percentage of them do not need charity. They are financially able to pay a reasonable fee.

Most physicians who have never done x-ray work do not realize that there is a great deal of time and work spent in establishing an x-ray diagnosis. It is not a simple matter of pressing a button and—presto!—the work is done. Fracture work is simple and easy, but to examine a gall-bladder, a kidney, or a gastro-intestinal tract takes a great deal more time and skill than most people realize. A consultant or an internist has no such great expense to contend with in his average cases, and yet a consultant or an internist is often paid much more than a radiologist. A surgeon's fee, too, is comparatively large when we consider the amount of time, material and skill required. Yet no one begrudges the surgeon his fee.

Most x-ray men are so intensely interested in their work, so zealous in pursuit of knowledge in their daily research work in their laboratories, that they have allowed themselves to be imposed upon when it comes to financial remuneration. They have not voiced their opinions of what they consider adequate compensation. They have been too busy. A day spent with a radiologist who has a hospital appointment would convince the average person that an x-ray specialist's life is a very busy life, filled with a mass of technical details. It is unlike the life of a surgeon or a general practitioner. Few people realize the actual stress and strain of x-ray work or the element of actual danger to the radiologist even today. Several of the most eminent radiologists in the world have died within recent years either from accidental contact with high tension wires or because of the blood-destructive action of the rays or from x-ray burns. All these things entitle the radiologist to far greater compensation than he now grudgingly receives.

Most hospitals and radiologists have established a more or less fixed schedule of fees for x-ray work, but the constant, and unnecessary, and undesirable bickering about the excessive fees has forced many radiologists, even some of our very best men, to often reduce the x-ray fees far below what is a fair and reasonable fee. When an eminent radiologist makes an x-ray examination at a greatly reduced fee, the reports of such reduced fees spread rapidly among patients and doctors. The argument then is, if an eminent radiologist makes x-ray examinations so

cheaply, why should other radiologists charge more? A vicious circle is established, for every patient and every doctor naturally desires the advantages of a minimum x-ray fee, not always because the patient cannot afford to pay more, nor as a concession, or a special favor, but because they feel that an x-ray examination is "not worth any more."

A sliding scale of fees is reasonable and just. The maximum fee that most radiologists ask is seldom—in fact, I think, has never been—excessive. If doctors in general understand the radiologist's work, the expense connected with it, the expenditure of time and energy involved, and the danger the radiologist faces, and explain these facts to their patients, a majority of the unpleasant discontent with the radiologist's fee would cease. The radiologist should never be a piece worker and commercialize his work by charging so much per plate. A true radiologist is a consultant and as such is entitled to a reasonably high fee for his expert knowledge and opinion.

Sincerely,

E. M. SUNDELOF, M.D.

Radiologist to the Lynn Hospital, and to the N. E. Hospital for Women and Children.

RESEARCH CLUB OF HARVARD MEDICAL SCHOOL.—At the meeting to be held on Friday, March 31st, at 12.30 o'clock, in the Amphitheatre of Building A, Prof. G. H. Parker will talk on: "Certain Aspects of Smooth Muscle Activity."

BOSTON ORTHOPEDIC CLUB.—A special meeting was held in John Ware Hall, Wednesday, March 22, at 8.15 P. M. Subject: "The Second Great Type of Chronic Arthritis," illustrated by stereopticon, by Dr. Leonard W. Ely of Leland Stanford Junior University, San Francisco. Discussion by Drs. E. H. Nichols, R. B. Osgood and F. W. Peabody.

CLINICAL MEETING.—There will be a Clinical Meeting in the Auditorium of the Beth Israel Hospital on Thursday evening, March 30, 1922, at 8.15 P. M. Program: "Certain Aspects in the Diagnosis and Treatment of Blood Diseases," Dr. George Minot. Discussion, Dr. Thomas E. Buckman, Dr. Hyman Morrison. Physicians are cordially invited. The telephone is Roxbury 5940, and visitors may be on call. Refreshments will be served. Committee on Clinical Meetings, Albert Ehrenfried, M.D., Chairman, E. Granville Crabtree, M.D., Secretary.

CLINICAL CONFERENCES AT MEMORIAL HOSPITAL, WORCESTER.—Should sufficient response be received, it is proposed to hold a series of clinics, on Thursday mornings, from 10 to 12, during April and May of this year, at Memorial Hospital. The clinics must, of necessity, consider examples of disease in the hospital at the time, so that no set program can be stated. Even so, the cases are very likely to exemplify problems commonly encountered, and will thus be valuable for study. Neither will there be so many cases that hasty consideration will be encouraged.

It is also proposed to discuss such matter as lends itself to more or less abstract discussion; for instance, the relatively simple method of obtaining a knowledge of renal function. Suggestions of subjects adaptable to similar discussion will be gladly received.

It is in mind to emphasize, during this series, the relationship between "laboratory" findings and clinical phenomena, endeavoring to point out how the information given by the more difficult and expensive laboratory procedures may possibly be obtained by careful clinical observation.

As it is not desirable that more than four should form a group, a greater number tending to lessened

opportunity for the members, division of applicants into more than one group may be necessary. Limitation of numbers may also be necessary.

Should interest in the clinics fail for any reason, the series will be closed, although in this regard, suggestions tending to make the work more profitable will always be welcome.

Announcement of the opening of the clinics will be made before April first.

Please send applications to Oliver H. Stansfield, M.D., Memorial Hospital, Worcester, Mass.

AMERICAN PROCTOLOGIC SOCIETY.

PRELIMINARY PROGRAM.

Twenty-third Annual Meeting, St. Louis, Mo., May 22 and 23, 1922. Meeting place and headquarters, Hotel Claridge. The profession is cordially invited to attend the public sessions.

Presidential address: Some Observations, Chiefly Clinical, on Infections of the Rectum and Adjacent Structures, with Special Reference to Pruritus, Granville S. Hanes, Louisville, Ky. 1. Anal Pruritus, Joseph F. Montague, New York, N. Y. 2. A Scalping Operation for Abscesses about the Rectum, Walter A. Fansler, Minneapolis, Minn. 3. Dwight H. Murray: A Tribute, by the Secretary. 4. Office Care of Anorectal Diseases, William M. Beach, Pittsburg, Pa. 5. Foreign Bodies in the Rectum, John D. Stewart, New York, N. Y. 6. Constipation and its Surgical Relations, James C. Minor, Kansas City, Mo. 7. Colostomy Technic, Ralph W. Jackson, Fall River, Mass. 8. The Value of Temporary Colostomy, Louis J. Hirschman, Detroit, Mich. 9. Synergistic Analgesia in Rectal Operations: Case Reports, Joseph F. Saphir, New York, N. Y. 10. An Aseptic Local Anesthesia as Applied to the Anal Region with a Reference to Anesthetic Composition. A Preliminary Report of Submucous Sphincterotomy in the Treatment of Anal Fissure, Edward G. Martin, Detroit, Mich. 11. Case Reports: A Stubborn Case of Pruritus Ani, an Unusual Ischio-rectal Abscess, an Ameba Histolytica Infection, a Seven-inch Sample Wine Bottle in the Rectum, Charles E. Howard, Cincinnati, Ohio. 12. Papilloma of the Rectum: Case Report, Harry B. Adams, Philadelphia, Pa. 13. A Method for Charting Proctologic Cases, Lantern Slides, Collier F. Martin, Philadelphia, Pa. 14. Electrolysis and Ultra-Violet Light in the Treatment of Certain Rectal Affections, Lantern Slides, Harold E. Dunne, Washington, D. C. 15. The Diagnosis of Cancer of the Rectum and Sigmoid, Lantern Slides, Daniel Morton, St. Joseph, Mo. 16. The Cautery in the Treatment of Cancer of the Rectum, William H. Kiger, Los Angeles, Cal. 17. One Real Case of Cure of Cancer with Radium and Operation, Curtis C. Mechling, Pittsburg, Pa.

NEW ENGLAND OTOLOGICAL AND LARYNGOLOGICAL SOCIETY.—The regular meeting of the Society will be held on Thursday, March 30, 1922, 7.45 P. M., at the Massachusetts General Hospital, Boston. Program: The Value of the Vestibular Tests in Intracranial Surgery, Dr. Wells P. Eagleton, Newark, N. J. Discussion opened by Dr. Harvey Cushing, Boston. Experimental Vestibular Phenomena: (1) Visual Control of Nystagmus, (2) Vestibular Tremors, Dr. C. L. Woolsey, Boston. Discussion by Dr. Harry P. Cahill. Dr. John H. Blodgett, Secretary, Dr. Frank E. Kittredge, President.

TO MEMBERS OF THE MASSACHUSETTS MEDICAL SOCIETY.

If your annual dues are unpaid, you will not receive the JOURNAL.

The Boston Medical and Surgical Journal

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Original Articles.

OVARIAN HEMATOMAS OF ENDOMETRIAL TYPE (PERFORATING HEMORRHAGIC CYSTS OF THE OVARY) AND IMPLANTATION ADENOMAS OF ENDOMETRIAL TYPE.*

By JOHN A. SAMPSON, M.D., ALBANY, N. Y.

[From the Gynecological and Pathological Departments of the Albany Hospital and the Albany Medical College.]

LOCKYER,¹ in his work, "Fibroids and Allied Tumors," published in 1918, has presented an excellent review of the entire subject of uterine and extrauterine adenomyomas up to that year. Chiari, in 1887, described a nodular swelling of the Fallopian tubes to which he gave the name salpingitis esthmica nodosa (now generally known as adenomyoma of the tube). Chiari found that the lumen of the tube sent projections of its mucous membrane into the muscularis. The connection was cut off in some, but the cysts which had formed were regarded by him as mucosal in origin. In 1891, Baraban attributed a mucosal origin to a uterine growth which he reported, and considered that the associated muscular and connective tissue hypertrophy supported his findings. In 1894, Pilliet took the view that the cysts and glands of

adenomyoma were of mucosal origin. In 1895, Cullen described his first case of adenomyoma, and through his writings on this subject, with their superb illustrations, he, more than any one else, has demonstrated that the generally recognized adenomyoma of the uterus arises from an invasion of the uterine mucosa into the wall of the uterus. The origin of certain forms of adenomyoma of the uterus and the tube by the invasion of the mucosa lining their cavities, is an established fact. What is the origin of extrauterine adenomyomas and also uterine adenomyomas which are not connected with the mucosa of the uterine cavity? The mucosa of the latter may have been originally continuous with that of the uterine cavity and this connection may have been cut off by uterine tissue growing between them, but others which superficially involve the surface of the uterus hardly admit of this conception. A review of the literature of extrauterine adenomyomas shows that they have been found involving nearly all of the structures in the pelvis, and even in the groin, umbilicus and anterior abdominal wall. The most interesting ones clinically are those invading the sigmoid, rectum and also those situated between the rectum and vagina; the latter are known as adenomyoma of the rectovaginal septum. These growths may clinically simulate carcinoma of the sigmoid and rectum. Lockyer in his work, previously referred to, gave an abstract of

*Presented to the Harvard Medical Society, Boston, Mass., February 14, 1922.

forty-seven cases of adenomyoma situated in the rectogenital space which he had collected from the literature. The first case was reported by Pfaenestiel in 1897. The growth was situated in the deep tissue of the posterior vaginal fornix near the uterus, and Pfaenestiel regarded it as of Wolffian origin. Of the forty-seven cases only four were reported from this country and these by Cullen.² Many theories have been given by the various authors as to the origin of extrauterine adenomyomas. Some believed that they were of Wolffian origin, others that they were derived from remnants of the Müllerian ducts; and in instances where the growth was attached to the uterus, that it was originally continuous with the mucosa lining the uterine cavity but later had become separated from it. The most interesting theory of all is "The Serosal Theory of Iwanoff," which has had the support of many writers and is fully discussed by Lockyer. Lockyer, quoting from the supporters of the serosal theory, states that "heterotopy of serosal epithelium is the probable explanation of the epithelial spaces and cysts in most of the extrauterine swellings found between the rectum and the genital tract." And again he states "there is no doubt whatever about the possibility of the so-called 'endothelium' of the peritoneum being able, when excited by inflammation or under the influence of pregnancy (Alfieri), to alter the character of the flattened cells so that they become cylindrical and columnar" and that "it has been conclusively shown that the connective tissue which surrounds the 'endothelial' inclusions can be excited to hyperplasia which causes it to assume the characteristic histological features of the stroma of the uterine mucosa" (pages 295 and 296). Cullen,³ in discussing the origin of adenomyoma of the rectovaginal septum, states that "we know nothing as to the origin of these tumors, but it is certain that their glandular elements are identical with those of the mucosa of the body of the uterus." "A careful survey of the wealth of embryological material in Professor Mall's laboratory may give us some clue as to the starting point of these growths." In his later communications^{4,7} on the subject, published in 1919 and 1920, their origin is not considered.

Russell,⁵ in 1899, published the report of a case in which uterine mucosa was found in an ovary, the first case of its kind in the literature. Lockyer (page 328) pictures and describes a specimen of Semmelink and Joslin de Jong. The ovary was adherent to an "adenomyomatous" uterus. There was in the ovary a blood cyst lined in part by "adenomyomatous tissue" and with similar tissue in spaces in the periphery of the ovary. Casler,⁶ in 1919, reported an unusual case in which a patient menstruated through the vagina after a conservative hysterectomy in which one ovary was saved. At the second operation, four years later, the en-

larged ovary was removed and it was found to contain cavities lined by "normal uterine mucosa." Cullen,⁷ in 1920, described three specimens of ovaries containing uterine mucosa, one sent to him by Dr. C. C. Norris (since published by Norris⁸), another by Dr. Otto Schwarz, and the third of its own. In all of these specimens the histologic picture was similar to that of normal endometrium.

In 1921, under the title "Perforating Hemorrhagic (Chocolate) Cysts of the Ovary," I reported twenty-three cases of ovarian hematomas, all occurring in my own practice, and fourteen of them during the previous year. The hematomas described in this series varied in size from 1 to 9 cm. in diameter, most of them from 2 to 4 cm. They were bilateral in eight of the twenty-three cases. The perforation in all cases was found on the lateral or the free surface of the ovary and in all the specimens the tubes were apparently patent. At the operation the cyst or ovary was found to be adherent, and in freeing it the "chocolate" contents escaped because a previous perforation, which had been sealed by whatever structure the ovary had become adherent to, was reopened or the cyst was torn. Adhesions were present in all cases and they varied greatly in location and extent. They were found in the natural pockets and folds of the pelvis where material escaping from such a perforation would be apt to lodge, and especially in the cul-de-sac. When slight they simulated the adhesions resulting from a pelvic peritonitis of tubal origin; on the other hand the adhesions in the cul-de-sac were sometimes accompanied by such a marked reaction as to resemble malignancy.

The lining of the hematomas presented a varied histologic picture. Some were completely lined by epithelium, low to columnar, the cuboidal and columnar type prevailing and usually with evidence of hemorrhage, recent or old (the latter shown by the blood pigment), in the ovarian tissue beneath the overlying epithelial lining. Gland-like structures were occasionally found in this stroma resembling uterine glands. In other hematomas the epithelial lining was for the most part lacking and the hematoma was lined by a pigmented luteal-like layer of ovarian tissue—the pigment for the most part being in cells of the type of endothelial leucocytes. Some of these hematomas demonstrated what seemed to be a relining of the hematoma by epithelium apparently entering the hematoma at the site of the perforation, which I then interpreted as derived either from epithelium which had not been completely removed by the subepithelial hemorrhage rupturing into the hematoma or else from epithelium situated in the ovarian tissue at the site of the perforation. I now believe it was derived either from epithelium not completely removed, as in the regeneration of uterine epithelium after menstruation, or else from epithelium

which escaped from the perforation and grew back in again or reimplanted itself. Pockets were often found on the surface of the ovary about the perforations which were lined by tissue resembling typical endometrium more closely than that lining the hematomas. I now recognize that probably most of these arose from the implantation of epithelium escaping through the perforation of the ovarian hematoma.

I stated that I believed that the majority, and possibly all of the ovarian hematomas reported in this series, were of endometrial type. We had failed to recognize that these hematomas were lined by tissue of endometrial type because we have used as our standard of comparison normal endometrium which was situated in its natural "soil" with a free avenue for the escape of its menstrual blood. We have abundant opportunity to study the variations in the appearance of the uterine mucosa in the hemorrhagic cysts or cavities due to the retention of menstrual blood, often found in uterine adenomyomas. These should be our standards of comparison in the study of ovarian hematomas because the physical conditions are similar. The lining of the ovarian hematomas which I reported was similar to those of the uterine hematomas above mentioned.

A histologic study was made of tissue involved in the adhesions in fourteen of the twenty-three specimens, and adenoma of endometrial type was found in thirteen of these. I concluded that these ovarian hematomas were a source of many of the adenomas of endometrial type, so-called adenomyomas, found in the pelvis and not continuous with the mucosa of the uterine cavity. I added that "I cannot state that these ovarian hematomas of endometrial type are the only cause of ectopic pelvic adenomas." The conditions found in many of these specimens were compared with the implantations of ovarian papilloma or cancer on the peritoneal surface of the pelvis from the rupture of an ovarian tumor containing these growths. Sometime or, possibly, several times in the life of these hematomas material, including epithelium and blood (menstrual), may escape into the peritoneal cavity from the perforation of the hematoma and become lodged in the natural pockets and peritoneal folds of the pelvis or on the surface of any of the organs in the pelvis. Implantation adenoma may develop from the epithelium thus deposited. "These adenomas may be small and quiescent or may be invasive. If invasive they cause 'adenomyoma' of the uterus by invasion of the uterine wall from without or adenomyoma of the uterosacral ligament, round ligament, rectovaginal septum, rectum, sigmoid, etc., namely, whatever structure or organ is invaded by the adenoma arising from the infective contents of the cyst or ovary lodging on its surface."

Since publishing this paper I have had the opportunity to study more material and have been able to detect various stages in their development and retrogression which previously I had failed to recognize. Up to date (January 1, 1922), I have studied the tissue involved in the adhesions in the specimens removed from forty cases of ovarian hematomas of endometrial type and have found implantation adenoma of endometrial type in the pelvis, in situations where the material escaping from the perforation of the hematoma would be likely to lodge, in all but one specimen. On the other hand, in three cases of typical ovarian hematomas of endometrial type without any evidence of perforation, adhesions were not present in the pelvis and there was not any gross evidence of implantation adenoma; the pelvis was examined very carefully in each instance. Cilia may sometimes be found on the epithelium of the uterine mucosa, more often on that lining the Fallopian tubes. They may also be present on the epithelium of "adenomyoma" arising from the invasion of tubal and uterine mucosa. Cilia may sometimes be found on the epithelium lining the ovarian hematomas of endometrial type and likewise in the implantation adenomas. This latter fact weakens the serosal theory of the origin of ectopic adenomas of endometrial type and strengthens the implantation theory.

We would expect that the portions of the intestinal tract, normally found in the pelvis, would often be the seat of these implantations. I believe that implantations are often present in the rectum, sigmoid, small intestine and appendix. At a meeting of the Interurban Surgical Society held at Albany, New York, November 25, 1921, I presented the pathologic findings in twelve cases in which portions of the intestinal tract were involved by this type of growth. Ten of the twelve cases occurred in my own practice and eight of these ten cases were encountered during the previous six months. The report of this communication is soon to appear in the *Archives of Surgery*. In these twelve cases the rectum and the sigmoid, including the epiploic appendages and mesentery of the latter, were involved in eight, the appendix in four and the small intestine in two. It is interesting to note that in the eight instances of implantations in the sigmoid and rectum the ovarian hematoma was situated in the left ovary in six, while in the four instances of implantation in the appendix it was situated in the right ovary in four. This suggests that while the implantations from either ovary may be general in their pelvic distribution the portion of the intestine usually situated near that ovary is more apt to be involved. In all twelve cases the source of the implantations could have arisen from the perforation of an ovarian hematoma of endometrial type. An ovarian hematoma with evidence of a previous perforation was found and was examined microscop-

ically in ten of the cases. In one of the others a hemorrhagic cyst of the ovary had been removed four years before but had not been examined microscopically. In the other a portion of the sigmoid had been excised with the diagnosis of carcinoma and at the same time the left tube and ovary were removed, the latter being adherent and cystic. There was not any note made in the record of the case as to the exact condition of the ovary; the operation was done in the year 1899. I believe that an ovarian hematoma of endometrial type was probably present in both of these cases.

I consider an ovarian hematoma with perforation as a frequent source of implantation adenoma of endometrial type, but possibly not the only source—as will be discussed later.

Adenoma is sometimes found invading the lymph vessels from these implantations, and metastases may occur from this source and explain the origin of similar growths found in the groin. I have seen a similar invasion of a lymph vessel in a primary "adenomyoma" of the tube and believe that they also may occur in primary "adenomyoma" of the uterus.

THE CLINICAL FEATURES OF IMPLANTATION ADENOMA OF ENDOMETRIAL TYPE.

These vary with the pathologic condition present. The latter are often of only histologic interest and do not give rise to any symptoms. In some cases the hematoma in the ovary is the most evident condition present. In others the peritoneal implantations and the invasion of the underlying organ or tissue is of greater importance; and the lesion in the ovary may be small and insignificant or occasionally absent, at least not demonstrable. The implantations in many ways resemble the implantations of ovarian carcinoma. Fortunately they are not as invasive, they grow more slowly and their distribution is not as great. They differ from carcinoma in another interesting feature: they may combine function with that of invasion; they may take part in menstruation. The menstrual blood may escape into the peritoneal cavity not only from the hematoma of the ovary but also from implantations which may be on the surface of the other pelvic organs and structures, and these may be the source of more implantations and also cause pain during the menstrual period. Hematomas may occur and the distention of the hematomas, wherever situated, with menstrual blood may also cause pain at that time, and if they are situated in the walls of the intestine the impairment of the function of the intestine may be more evident during menstruation.

All pelvic adenomas of endometrial type have certain clinical features in common. They usually manifest themselves in women between thirty years of age and menopause. They occasionally occur in younger women, but I have

seen only one instance in a woman after the menopause; in this case the condition was apparently inactive. There is often a history of sterility in married women or of no pregnancies in several years. Painful menstruation of the acquired variety, or increasing in severity, is quite a common symptom. Pain may also arise from the adhesions, independent of menstruation. The symptoms for which the patient seeks relief may be due to some other pelvic condition and the adenomas may be an accidental finding. When the growth in any way encroaches upon the lumen of the intestine, then symptoms arising from this may occur and these may be more marked or present only during the menstrual period.

The physical signs vary greatly. The ovarian hematoma, if large, may be readily detected and the condition may simulate an adherent or malignant ovarian cyst. If smaller, it may resemble, on palpation, adherent ovaries associated with salpingitis. In other instances the ovarian hematoma may be so small that it cannot be detected prior to operation; it may also be easily overlooked during the operation and even in the routine examination of the ovaries in the pathological laboratory.

The palpatory findings in the cul-de-sac, when present, furnish the most characteristic physical signs. The uterus is often retroverted or retroflexed and adherent. Leiomyomas are frequently present. The implantations in the cul-de-sac may be slight or extensive, smooth or nodular, in the mid line or lateral, and often involving the uterosacral ligaments; and are frequently tender on palpation. The extensive cases may sometimes simulate implantation carcinoma in the cul-de-sac or at other times cancer of the rectum or sigmoid. The adenoma may extend down between the rectum and the vagina. In typical cases the diagnosis prior to operation is often easy. The age of the patient (usually between 30 and the menopause), the acquired dysmenorrhoea, (the disturbance of intestinal function during menstruation if some portion of the intestinal tract is involved), the detection of a small adherent ovarian cyst or adherent ovary, and the palpatory findings in the cul-de-sac, present a symptom-complex rarely furnished by any other condition.

In atypical cases or those dominated by some other and a more evident condition the adenomas may be easily overlooked. During the last year I have made a correct preoperative diagnosis in about half the cases. They may be classed among the common pathologic pelvic conditions as they are found in from ten to twenty per cent. of women between thirty years of age and the menopause who require an abdominal operation for some pelvic condition.

The treatment of this condition is an unsettled problem. In many instances the adenomas are chiefly of histologic interest and all of them probably cease to grow and actually atrophy

after the menopause. My present reaction on finding this condition at operation is not to disturb the implantations except as they may be easily removed for histologic study, but to deal with the pelvic organs as their condition indicates. I believe that the cases requiring intestinal resection are very rare, because the implantations will usually, possibly always, atrophy after all ovarian tissue is removed. Conservative ovarian surgery, at least in cases with intestinal involvement and extensive implantations, is attended with two sources of danger. The preservation of ovarian tissue leaves behind a possible source of further implantations, and it may also stimulate the growth of implantations which have not been removed.

THE SOURCE OF THE OVARIAN HEMATOMAS.

In the previous communication I described small hemorrhagic areas in the ovaries of three patients who had been operated upon during their menstrual period. Histologically, these areas proved to be due to hemorrhage about or into a space lined by tissue of endometrial type. I stated that I believed that these gland-like spaces were lined by epithelium of endometrial type, as shown by their structure and by their function (menstruation). I also stated that ovarian hematomas of endometrial type might arise from these misplaced structures. I have traced every stage in the development of ovarian hematomas of endometrial type from these structures of endometrial type which may react to the menstrual impulse. If these structures are situated near the surface of the ovary, perforation occurs while they are still small,—a few millimeters in size. Epithelium may escape into the peritoneal cavity from these miniature hematomas (hemorrhagic cysts) and give rise to implantations. Repeated hemorrhages and perforations may remove all the epithelial lining and thus destroy the cyst, so that this source of the implantation may not be evident at operation and may not be found in the examination of the ovaries in the laboratory, should they be removed. If the hematoma develops from an "endometrial" gland situated in the deeper portion of the ovary, then the hematoma may reach a larger size before perforation occurs. As the menstrual blood does not escape during the development of the cyst prior to perforation, many interesting changes take place in the walls of the hematoma, which I intend to fully describe in a later communication.

The following data may be offered as evidence that these ovarian hematomas are of endometrial type:

1. They arise from glands and tubules of endometrial type, in the ovary, which react to menstruation. Every histologic condition found in the lining of these hematomas

may be traced to the hemorrhage due to menstruation, the subsequent reaction on the part of the ovarian stroma and the attempted regeneration of the epithelial lining.

2. Histologically, the lining of the ovarian hematomas is similar to that of uterine hematomas, due to retention of menstrual blood, often found in "adenomyoma" of the uterus.

3. They manifest their activity, as does the uterine mucosa, during the menstrual life of the patient.

4. The hemorrhages occurring in the ovarian hematomas are similar in gross and histologic appearance to that of menstruating endometrium. This hemorrhage is repeated, as shown by fresh blood and pigment, the latter an evidence of previous hemorrhage.

5. The histologic changes in the lining of the hematomas may correspond to the phase of the menstrual cycle indicated by the menstrual history of the patient.

6. Recently I removed a large myomatous uterus containing an early pregnancy (accidental finding). A perforated ovarian hematoma of endometrial type was situated in the left ovary. Typical decidual reaction was found in the lining of this hematoma and also, but to a less extent, in the peritoneal implantations of endometrial type.

7. The fact that implantation adenomas of endometrial type develop in the pelvis in places apparently soiled by the contents escaping from the perforated ovarian hematoma suggests that the epithelium giving rise to these implantations was derived from the contents of the hematoma, and therefore the hematoma was lined by epithelium of endometrial type. Cilia may sometimes be found on the epithelium lining the ovarian hematoma and also on that in the implantation adenomas.

How does this epithelium of endometrial type reach the ovary? Is it of developmental origin or is it acquired during the adult life of the individual? The theories as to the developmental origin of such epithelium are fully discussed by Russell in his report of a case of typical endometrial tissue found in an ovary (the first case reported in the literature). He refers to the work of Waldeyer and of Nagel who have shown that the epithelium of the Müllerian duct is exclusively derived from germinal epithelium. Russell makes the following conclusions in regard to the origin of the endometrial tissue in his case. "If we accept this view of Nagel it is not difficult to conceive that a portion of germinal epithelium which forms the ovary should, at times, attempt to produce structures which its function elsewhere calls upon it to do. Such an accident may be represented by simple tubes or spaces lined with ciliated columnar epithelium of the tube, or villous and papillary growth analogous to the mucous membrane of



FIG. 1. Ovarian hematoma of endometrial type (perforated hemorrhagic cyst of the ovary) with pelvic implantation adenomas of endometrial type. Patient, aged 28, complained of severe dysmenorrhea during the previous year, which was increasing in severity. Bowel movements were associated with pain during menstruation. Prior to the operation the uterus was found to be pushed forward and to the left by a cystic tumor, as indicated in the illustration of a sagittal section of the pelvis. This tumor was adherent, and definite induration could be palpated in the cul-de-sac, apparently involving the rectal wall at X. A correct preoperative diagnosis was made. On freeing the cyst, at the operation, a large amount of "chocolate" fluid escaped because a previous perforation had occurred, as indicated by the arrow. For implantations, see the next illustration (Case 4 of second series, not yet published).

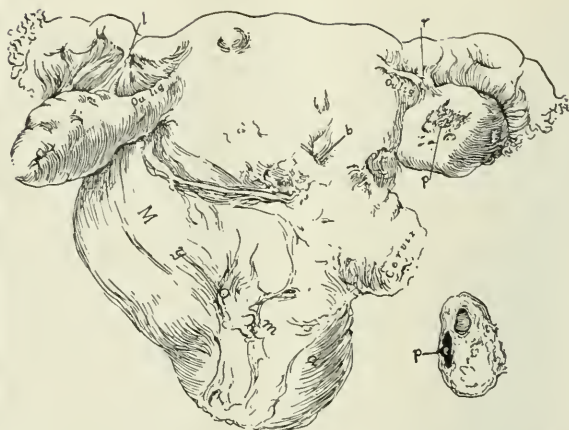


FIG. 3. Implantation adenomas of endometrial type, involving the posterior surface of the uterus, both broad ligaments, the left round ligament and anterior surface of the uterus; small perforated hematoma (of endometrial type) of the right ovary, multiple leiomyomas. Posterior surface of the uterus, tubes and ovaries ($\times \frac{1}{2}$). A puckering of the broad ligaments is indicated at l and at r. Adenoma of endometrial type was found in this tissue and also in the implantations on the posterior and anterior surfaces of the uterus. The small hematoma of the right ovary with perforation indicates a possible source of these implantations. The patient, aged 41, complained of dysmenorrhea of three years' duration, increasing in severity. The preoperative diagnosis was an adherent myomatous uterus, and the ovarian hematoma with implantation adenomas were accidental findings at the operation (Case 22 of first series).

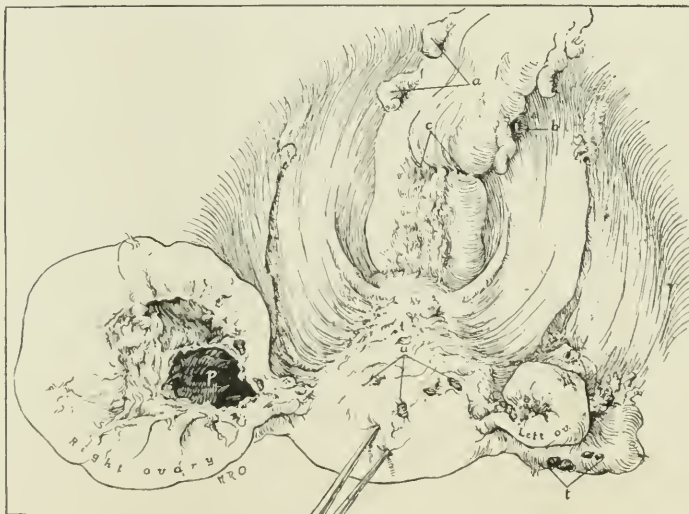


FIG. 2. Implantation adenomas of endometrial type involving the sigmoid (c), its mesentery, (b), and epiploic appendage, (a), the posterior surface of the uterus (u) and left tube (l); large hematoma of endometrial type of the right ovary with perforation (p). The condition found at the operation (case shown in Fig. 1) is indicated after freeing the ovarian hematoma, ligating and cutting the ovarian vessels and drawing the uterus upwards and forward. The ovarian hematoma is shown partially collapsed. The distribution of the implantations is similar to that of an ovarian carcinoma with perforation, and I believe that the implantations in this case arose from epithelium escaping from the perforated ovarian hematoma, just as implantation carcinoma arises from epithelium escaping from the primary growth. For photomicrographs of the lining of the ovarian hematoma and the implantations on the uterus and tube, see Figs. 6, 10 and 11.



FIG. 4. Implantation adenoma (of endometrial type) in the cul-de-sac fusing the posterior surface of the retroflexed uterus to the rectum. Sagittal section of the pelvis ($\times 1\frac{1}{2}$). A perforated hematoma of endometrial type was present in the right ovary (Fig. 8). The adenoma in the cul-de-sac apparently arose from the escape of the contents of the ovarian hematoma. It has invaded the posterior wall of the uterus, forming an "adenomyoma," and

might extend posteriorly, invading the rectum or down between the rectum and vagina, forming the so-called adenomyoma of the recto-vaginal septum. The patient, aged 44, complained of marked constipation, worse at the menstrual periods, and some pain at that time. The induration in the cul-de-sac was detected prior to operation and led to a probable diagnosis of the condition present (Case 21 of first series).



FIG. 5. "Adenomyoma" of the posterior uterine wall which is fused to the anterior wall of the rectum, perforated hematoma of endometrial type of the right ovary (see insert). Sagittal section of the pelvis ($\times 1\frac{1}{2}$). The adenoma of endometrial type apparently arose from the escape of the contents of the ovarian hematoma into the cul-de-sac. It has fused the uterus to the rectum and has invaded the former to a greater extent than the latter. A distinct nodule (X) was found in the anterior wall of the rectum. I

believe it was a nodule of adenomatous tissue. It was not removed. The patient, aged 36, complained of increasing constipation of six months' duration, but no pain. The preoperative diagnosis was dense pelvic adhesions (chronic pelvic peritonitis) with the possibility of implantation of cancer of the cul-de-sac, of cancer of the rectum at the junction of the rectum and sigmoid (Case 12 of first series).

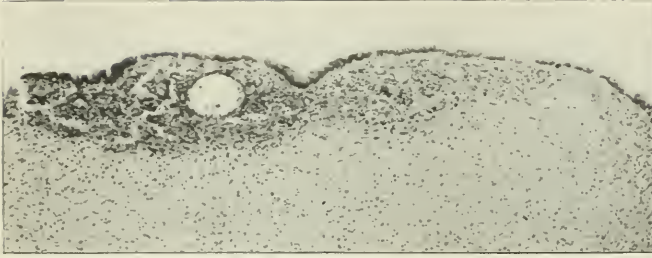


FIG. 6. Photomicrograph of a portion of the wall of the perforated ovarian hematoma shown in Figs. 1 and 2. Here it is lined by cuboidal to columnar epithelium with an underlying stromal hemorrhage (menstrual). The epithelium is similar to that lining the adenomas of the implantations. In other portions of the wall of the hematoma the epithelium is lacking, having been carried away by the underlying hemorrhage rupturing into the cavity of the hematoma. An occasional gland resembling a uterine gland was found in the wall of the hematoma.

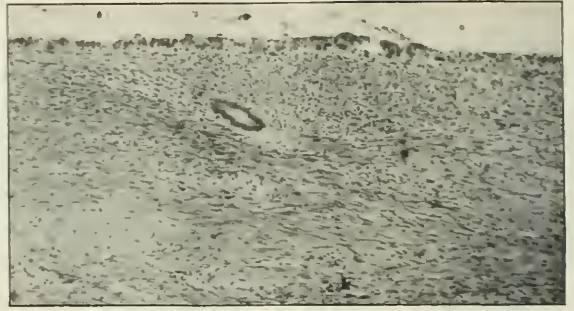


FIG. 7. Photomicrograph of a portion of the wall of the perforated ovarian hematoma shown in Fig. 3. It is lined by a single layer of cuboidal to columnar epithelium with an underlying cellular stroma. A structure, resembling a uterine gland, is present in this stroma. The hematoma is of endometrial type, as shown by its structure and function (menstruation). The escape of epithelium, with the hemorrhagic contents of the hematoma, through the perforation, could have caused the implantation adenomas shown in Fig. 3.

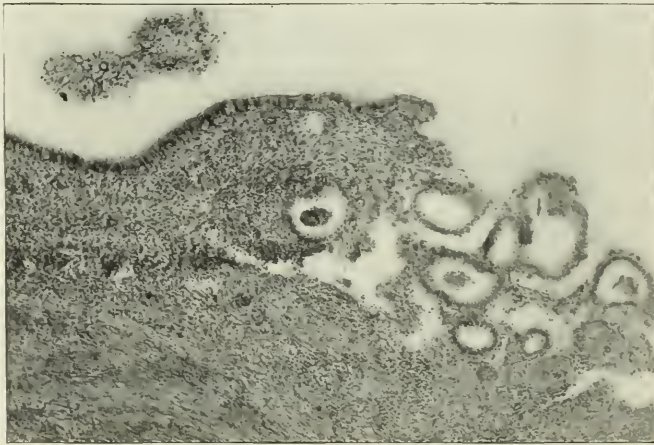


FIG. 8. Photomicrograph of a portion of the wall of the perforated ovarian hematoma present in the specimen shown in Fig. 4. The hematoma was about 2 cm. in diameter, lined for the most part by a pigmented layer of ovarian tissue without an epithelial covering. The pigment was due to a previous hem-

orrhage. Near the site of the perforation a columnar epithelial lining was present and in a few places glands were found as shown in this illustration. Cilia were present on some of the cells, lining the hematoma, and also on some of the epithelium in the implantations.

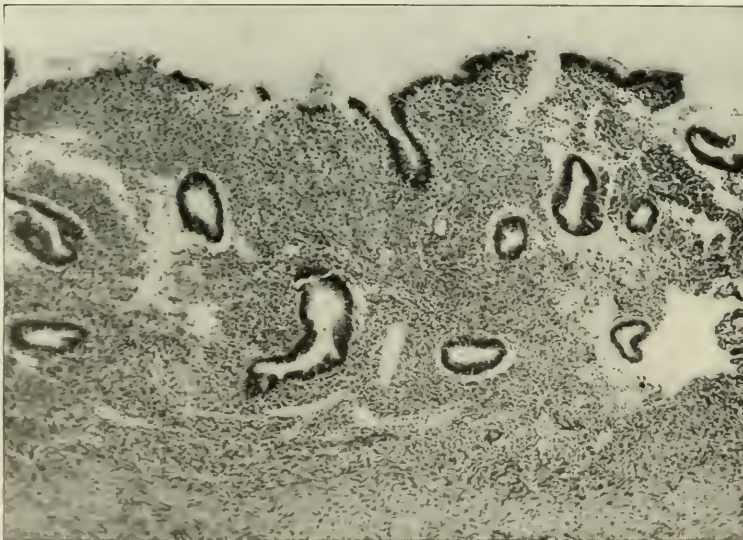


FIG. 9. Photomicrograph of a portion of the lining of a pocket in the periphery of the ovary near the perforation of an ovarian hematoma of endometrial type. I believe it is an implantation adenoma from the perforation of the ovarian hema-

toma. Other implantation adenomas from the same case are shown in Figs. 12 and 13 (Case 19 of the first series and Case 2 of the second series).

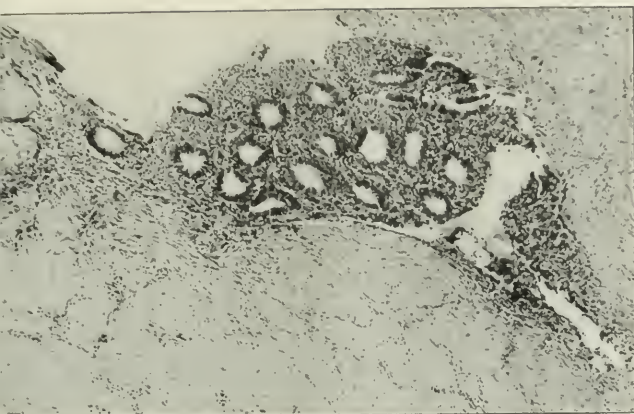


FIG. 10. Photomicrograph of implantation adenoma of endometrial type invading the posterior wall of the uterus, from specimen shown in Figs. 1 and 2.



FIG. 12. Adenoma of endometrial type of the sigmoid invading the wall of the intestine from its peritoneal surface and "worming" its way through the subserosa and muscularis and giving rise to hematomas (H.H.) in the submucosa. From the same case as the illustration shown in Figs. 9 and 13. The patient, aged 45, gave a history of acquired dysmenorrhoea of two years' duration, associated with marked constipation amounting to partial intestinal obstruction at that time.



FIG. 11. Photomicrograph of implantation adenoma of endometrial type invading the Fallopian tube. Tube shown in cross section with adenoma invading the wall of the tube from its surface. From specimen shown in Figs. 1 and 2.



FIG. 14. Photomicrograph of a "gland" of endometrial type in the periphery of an ovary. It is lined by columnar cells, some of which are ciliated. Hemorrhage is present in the tissues about the gland. The patient was menstruating at the time of the operation. Ovarian hematomas of endometrial type develop from these structures. If they are situated near the ovary, as this one is, perforation occurs while they are small, as shown in Fig. 16. If situated in the deeper tissues of the ovary, the hematoma may reach a large size before perforation, as shown in Figs. 1 and 2.

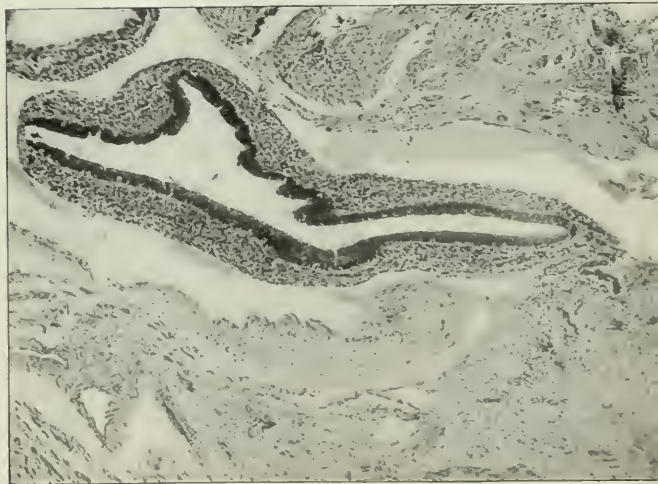


FIG. 13. Photomicrograph of an adenoma of endometrial type invading a lymph vessel of the broad ligament. The adenoma appears as a polyp; a portion of another polyp is also shown in the same vessel. This explains a possible source of metastatic adenomyoma which is sometimes found in the groin.



FIG. 15. Photomicrograph of a dilated gland of endometrial type with hemorrhage into the tissues about it and evidence that some of the blood had escaped into the lumen of the gland. It is a miniature hemorrhagic cyst of endometrial type. It is lined by cuboidal and columnar epithelium. Many of the cells were ciliated.

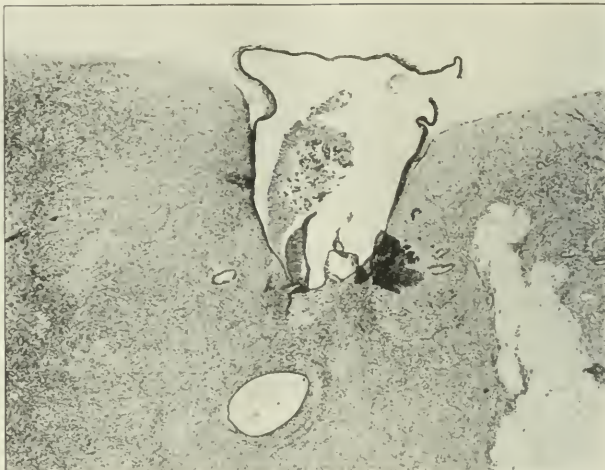


FIG. 16. Photomicrograph of the periphery of an ovary, showing a small ovarian hematoma of endometrial type which is about to perforate (lower magnification than the preceding). Glands of endometrial type are present in the ovarian tissue about the hematoma. The wall of the hematoma was torn in cutting the section. Other small hematomas were found in the ovaries of this specimen, some of which had perforated. Implantation adenomas of endometrial type were found in the cul-de-sac where material escaping from the perforation of these hematomas would be apt to lodge. Small, perforated ovarian hematomas of endometrial type may be easily missed, not only at the time of the operation, but even in the study of the ovaries in the laboratory.

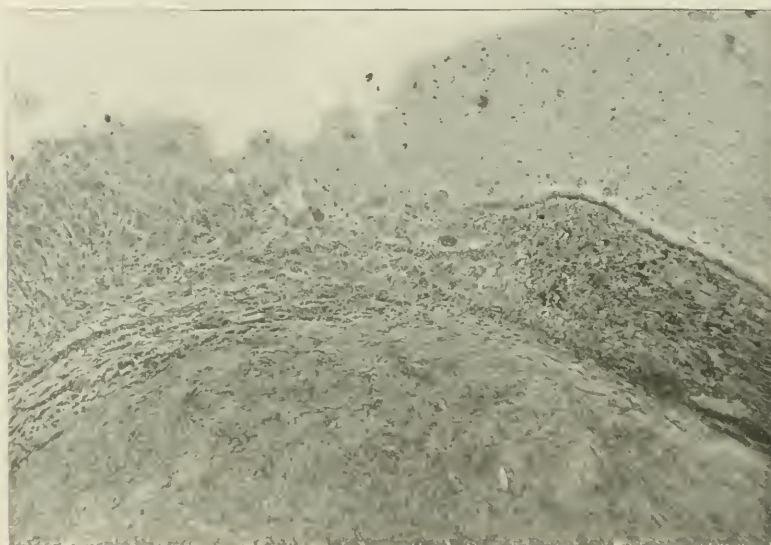


FIG. 17. Photomicrograph of a portion of the wall of an ovarian hematoma of endometrial type, about 1.5 cm. in diameter, which had not perforated, showing the origin of the pigmented luteal-like lining often found in many of these hematomas. The patient was menstruating at the time of the operation. To the right, the epithelial lining is still present with an underlying stroma hemorrhage. In the center, endothelial leucocytes have developed and are pouring into the cavity of the hematoma. To the left, the luteal-like pigmented layer is forming, which is composed, for the most part, of endothelial leucocytes containing blood pigment.

the tube or even the more complicated structure of the uterus, glands, intraglandular connective tissue and muscle. In the specimen which I have described there is a collection of glands in a groove on the surface of the ovary. The epithelium covering them is continuous with a simple layer of columnar cells at the margin of the groove and extends a short distance over the surrounding surface. Thus we have direct proof that the germinal epithelium is capable of producing glands analogous to those of the uterine mucosa."

Tubules are sometimes present in the hilum of the ovary which are apparently of Wolffian body or duct origin, and these might be considered as a source of tissue of endometrial type in the ovary.

Some of the fimbriae of the tube are often adherent to or in contact with the surface of the ovary. Epithelium from this source might be stimulated to invade the ovarian tissue beneath it just as the epithelium lining the tube may sometimes invade its walls, giving rise to so-called adenomyoma of the tube. It is possible that these glands and tubules of endometrial type, from which ovarian hematomas develop, may arise from any or all of the above-mentioned sources.

The data which I have been able to obtain suggest that tubal and uterine epithelial cells may, under certain circumstances (as an abnormal menstruation with a back flow through the tube), be expelled from the fimbriated end of the tube and lodge on the surface of the ovary. They may become imbedded in the tissues of the ovary and, true to their type, form glands and tubules which actually invade the ovary. The process is analogous to that which results from the implantation of epithelial cells on the peritoneum from the perforation of ovarian hematomas of endometrial type, as described in the previous and also in this communication.

This theory as to the implantation origin of these tubules, which give rise to hematomas of endometrial type, from tubal or uterine epithelium escaping from the tube, is based on the following data.

Epithelium may sometimes be found on the surface of the ovary invading the underlying tissue. This epithelium may be ciliated, sometimes resembling more closely that of the tube and at other times that of the uterus. This epithelium may invade the ovary in the form of tubules. The ovarian tissue about the epithelium on the surface of the ovary, as well as that about the tubules in the deeper portions, may sometimes react to menstruation.

These hematomas rarely develop in women under thirty years of age; if they were of developmental and not of acquired origin we would expect them to occur in younger women, soon after puberty.

They develop during the menstrual life of the patient (usually the latter part), when tubal and uterine epithelium would be more likely to escape from the fimbriated end of the tube, than before puberty and after the menopause.

The uterus in these cases is often retroflexed, contains leiomyomas and polyps; conditions which might favor a back flow of menstrual blood.

In the fifty-two cases of perforated ovarian hematomas, which I have studied, the tubes were apparently patent in all, suggesting that this avenue for this source of implantation was open.

These hematomas are often bilateral and usually perforate on the lateral or the under surface of the ovaries, the portions of the ovaries most apt to be infected by material escaping from the lumen of the tube, as well seen in the ovarian adhesions found in pelvic inflammatory disease secondary to salpingitis.

Implantations of endometrial type arise on the peritoneal surface of the pelvic structures from the escape of the contents of an ovarian hematoma of endometrial type and, furthermore, similar implantations may occur in the ovary with the perforation, and the opposite one from this source. These implantations, involving the ovaries from this source, simulate the original development of the ovarian hematomas but are usually more virulent. As implantations arise from the perforation of the ovarian hematomas, so may ovarian hematomas arise from implantations. The most obvious source of these implantations is from or through the Fallopian tube.

The study of these cases, both at the time of the operation and in the laboratory examination of the specimen removed, usually shows a perforated ovarian hematoma with implantation adenomas of endometrial type. The extent of the distribution of the implantations usually varies with the size of the ovarian hematomas and the size of the perforation. The larger the hematoma and the larger the perforation, usually the greater the extent of the distribution of the implantations. In forty cases of perforated ovarian hematomas of endometrial type with perforations, in which I have studied histologically the tissues involved in the adhesions apparently resulting from the escape of the contents of the cyst, adenoma of endometrial type was found in all but one specimen. On the other hand, in three cases of typical ovarian hematomas of endometrial type, without any evidence of perforation, adhesions were not present and there was not any gross evidence of implantation adenomas; the pelvis was examined very carefully in each instance.

May pelvic implantation adenoma of endometrial type occur from other sources than from a perforated ovarian hematoma of endometrial

type? I believe they do, although it is difficult to exclude the ovarian source in any case. The ovarian hematoma may be very small, a few millimeters in diameter, or, as the result of repeated hemorrhage and loss of epithelium, they may become still less evident and may entirely disappear. Up to date (January 1, 1922), I have found eight instances of small adenomas of endometrial type in the cul-de-sac without gross evidence of a perforated hematoma of the ovaries. One or both ovaries were removed in all but one case. In the ovaries of three of the seven cases, which were examined, tubules of endometrial type were found, which I interpreted as the possible remains of a small ovarian hematoma which had perforated, or they were tubules which had not developed into hematomas. In a fourth specimen an area containing pigmented cells was found in the ovary, which suggested the remains of a small ovarian hematoma. In the other three cases tubules of endometrial type were not found in the ovary and there was not any evidence of a previous stromal hemorrhage. These may have been missed, as serial sections of the ovaries were not made. It was interesting to note the character of the implantations when there was no gross evidence of an ovarian hematoma with perforation. They were usually smaller and not as widely distributed as those generally found in the pelvis associated with ovarian hematomas with evidence of perforation. They also often presented a little different histological picture. The implantations apparently derived from the perforated ovarian hematoma are usually more active and rapidly growing. I believe that implantations from both sources may have been present in some specimens. These latter observations are, to me, the most convincing evidence that the ovarian hematomas may arise from tubal or uterine epithelium escaping from the tube (a possible result of internal menstruation).

My interpretation of the usual origin and development of implantation adenomas of endometrial type is as follows:

Tubal and uterine epithelium may at times escape into the peritoneal cavity through the fimbriated end of the tube. It lodges where such material would be likely to fall, especially on the lateral surface of the ovary and in the cul-de-sac, the distribution corresponding to the distribution of pus escaping from the tube in salpingitis. Adenoma may develop wherever this epithelium falls on suitable "soil." We may, therefore, have implantations only on the ovary, especially on its lateral surface and free border. They may occur both in the ovary and in the pelvis or in the pelvis alone. The tubules arising in the ovary may develop into hematomas which usually perforate and give rise to implantation adenomas apparently usually more invasive (virulent) and with a

wider distribution than the implantations found without evidence of an ovarian hematoma. I consider the ovary as a sort of intermediary host, hotbed or incubator which imparts greater virulence to the epithelial cells developing in it, but it may not be an essential intermediary host in the origin of implantation adenomas of endometrial type.

We may go a step further in the interpretation of the ovary as an intermediary host or incubator. The epithelium lining the Fallopian tubes, the body of the uterus and its cervix have a common origin, yet differ in structure and function. If the ends of the tube become occluded, a cyst (hydrosalpinx) develops, rarely a hemato-salpinx. If the cervix becomes occluded during the menstrual life of the patient a hematometra develops. If a cervical gland becomes occluded, a retention cyst filled with the secretion of the cervix arises. I have described the development of endometrial hematomas (hemorrhagic cysts) from these tubules of endometrial (Müllerian) type in the ovary. We realize that ovarian cysts are found with a lining and contents which resemble that of a hydrosalpinx and that other cysts occur with a lining and contents similar to that of a retention cyst of the uterine cervix. Also some ovarian carcinomas resemble histologically those arising from the endometrium and may even contain ciliated epithelium. Can these all have a common origin from these tubules of endometrial (Müllerian) type in the ovary; and, furthermore, is the ovary an intermediary host (chemical laboratory) which in one instance causes these tubules to develop into endometrial hematomas, in another into a serous cyst lined by ciliated epithelium similar to a hydrosalpinx, and again into a cyst resembling the retention cyst of the uterine cervix and in another instance into an adenocarcinoma?

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180 Washington Ave.

MODIFICATIONS OF APPARATUS AND IMPROVED TECHNIC ADAPTABLE TO THE BENEDICT TYPE OF RESPIRATION APPARATUS.

PAPER I.—VALVES VERSUS THE ELECTRIC IMPELLER.

PAPER II.—TECHNIC.

PAPER III.—GRAPHIC METHOD FOR THE ESTIMATION OF THE METABOLIC RATE.

PAPER IV.—MOISTURE ABSORBING EFFICIENCY OF CO₂ ABSORBENTS.

BY PAUL ROTH, M.D., BATTLE CREEK, MICH.

Paper I.

VALVES VERSUS THE ELECTRIC IMPELLER.

A VAST amount of literature is at present available on the subject of metabolimetry. Its clinical value is unquestioned but its field of usefulness is as yet relatively little explored. The number of investigators is rapidly increasing, due to the most promising nature of this field of research and to the simplification and perfection of apparatus and technic required. The most valuable contributions to this latter phase of the subject are those of Dr. F. G. Benedict and his associates at the Carnegie Nutrition Laboratory of Boston, Massachusetts.

The *raison d'être* of Benedict's Universal Respiration Apparatus¹ (Fig. 1) followed by the Portable Apparatus,² (Fig. 2) and later by the "New Portable"³ (Fig. 3) is thoroughly discussed in the references to the literature given, which the interested clinician and more particularly the technician are urgently advised to consult. Fig. 4 shows how the older model shown in Fig. 2, can readily be transformed with little expense into the newer model.⁴

Thousands of clinical observations with these three models as well as comparative determinations made with the gasometer type, as is used in the so-called "Tissot Method", have given us ample proof of the soundness of Benedict's Method.

Year after year I have had the opportunity to watch the evolution of this type of apparatus and realize the enormous amount of work which has been persistently carried on for nearly fifteen years by Benedict and his associates to introduce and perfect both the apparatus and the technic. Not only was it necessary to overcome mechanical difficulties but also to settle by exhaustive lines of research, various physiological problems involved. Much prejudice and skepticism had to be met from the beginning, and it is ever with extreme caution that Benedict has given to the scientific world the fruits of his labor. His claims have been modest, particularly with regard to the "portable," and it is only after exhaustive trials and in the pres-

ence of abundant technical and clinical evidence that he now comes forward with the statement that "oxygen consumption of patients may be studied by this apparatus in the customary 10 to 15 minute periods, with an accuracy fully equal to other standard methods of studying the respiratory exchange."⁵

In a report of a thorough comparative study of two standard methods and apparatus, Hendry, Carpenter and Emmes make the following statements: "When the basal metabolism only is desired, it is an economic waste to attempt any other measurement than that of the oxygen absorption supplemented by the controls we have recommended;" and "When the measurement of oxygen consumption alone is desired the Benedict Portable Respiration Apparatus is the best apparatus for short period measurement."⁶

While several of the numerous modifications suggested for this apparatus have been adopted with most satisfactory results, yet there has been a tendency on the part of some manufacturers to introduce simpler models at the cost of a very serious loss of accuracy.

Over a year ago while putting the "New Portable" to a test in a series of clinical observations reported in this Journal,⁷ I started an investigation on the possibility of dispensing with the electric air impeller by installing valves in this type of apparatus. I venture to present this modification of the New Portable with confidence that precision is fully preserved, as shown by carefully conducted comparison tests and with the conviction that its evident advantages will be readily appreciated.

The use of valves in some forms of respiration apparatus is absolutely indispensable, and is by no means new. In fact, it long preceded the valveless, motor-driven type of apparatus. The mere presence in the circuit of a pair of freely acting valves with adequate openings, does not, to any appreciable degree, interfere with the free and easy passage of air through the apparatus when in use. The possibility of eliminating all motive power in order to obtain adequate ventilation has been entertained by other observers.

Years ago, Dr. T. M. Carpenter made a similar attempt with this type of apparatus equipped for the determination of the CO₂ eliminated, as well as of the oxygen consumed. He informs me that it was not because the oxygen consumption was increased that the valves were not adopted, but because he believed that the respiratory quotients could not be determined accurately enough with that type of apparatus.⁸

Dr. J. H. Means of Boston, writes me that he has made use of the valves in place of the motor, with good success in demonstrations of respiratory phenomena.

The "New Portable" lends itself admirably to the adaptation of valves. In fact, when resorting to valves to direct the air through its cir-



FIGURE 1.—Benedict's Universal Respiration Apparatus and Timing and Recording devices, Carbon Dioxide Absorber, Electric Oxygen consumption and Carbon Dioxide elimination.

Accessories: Oxygen Tank, Bohr Meter, Spirometer, Kymograph, Motor and Air Blower, and Balances. For the determination of

cuit, nothing else is required than is demanded by the air impeller. *Impacted soda lime, too long and too narrow metal or rubber tubings and connections, improperly counter-balanced spirometer bell, obstructions due to kinks or to the accumulation of condensed moisture, etc.,* all these must be equally well guarded against whether valves or impeller is used.⁹

The type of valve finally adopted is shown in Figure 5. Boothby and Collins have devised a metal housing for it. Over a year ago my assistant, Mr. C. H. Peet, mounted several of them for me at a nominal cost. Two pairs have since that time been in constant use with two gasometers of the Boothby-Sandiford type. They have never failed to give perfect satisfaction and so far have required no attention. The glass housing of one of them was accidentally broken recently and the rubber valve was found to be apparently in perfect condition. Bailey uses the same "flutter valve" enclosed in flattened glass cases. A celluloid housing can also be provided, I understand.¹⁰

DESCRIPTION OF THE VALVE.

Operates freely in all positions, absolutely noiseless, closes instantaneously and without hammering, 100 per cent. efficient, simple and inexpensive.

Bottle without bottom— $3\frac{1}{2}$ inches (with neck 5 inches). Internal diameter $1\frac{3}{4}$ inches. Metal

or glass tubing, $\frac{3}{4}$ inch outside diameter, 2 to 3 inches long. Rubber stopper, and rubber valve.¹¹ Should be wired together if used where it is likely to be pulled apart. The valves may vibrate if the stem is not drawn far enough over the tubing. When properly mounted it will never stick. This type of valve has shown its absolute efficiency and reliability in mine rescue work and in the world's war, as one of the vital parts of the gas mask.

Comparing Figs. 4 and 6, one will readily appreciate how simple is the elimination of the air impeller and the adaptation of the valves in the New Portable. Everything considered, the location of the valves as shown in Figs. 4 and 6, seems to be the best. In expiration the valve, inserted in one of the rubber tubings, closes, and the air passes through the other tube, then through the CO_2 absorber, which is inside the spirometer chamber when in use. The expired air then enters this chamber through the second valve located on top of the absorber, the spirometer bell rising during each expiration. During inspiration the bell falls, the air being drawn out of the chamber through the outlet at the bottom, and passes through the other valve on its way back toward the mouth piece.

Resistance to the respiratory movements however insignificant it may be, is, for physiological reasons, far less noticeable to the subject during expiration than with inspiration. When

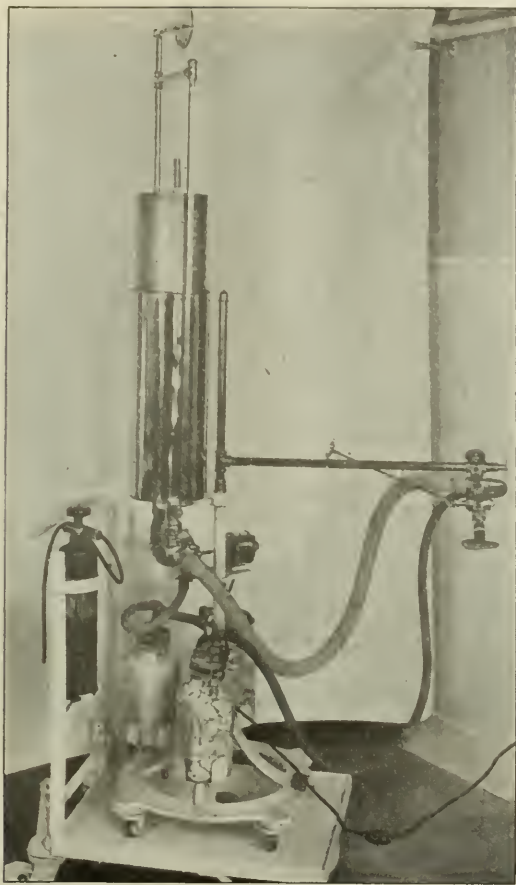


FIGURE 2.—Benedict's "Old" Portable Respiration Apparatus, on small truck. With External Air Impeller, two Calcium Chloride "Moisture" Absorbers, one Soda Lime "Carbon Dioxide" Absorber, Small Oxygen Cylinder. Intended for estimating "Carbon Dioxide" elimination as well as Oxygen consumption.

only a slightly noticeable resistance to respiration occurs either with the impeller or with the valves, the subject readily becomes totally unconscious of it and the metabolic rate is not perceptibly affected. This is well shown in the comparative results obtained with the air impeller and with the valves.

A series of such observations were made in the summer of 1920 with two trained and two untrained subjects. To better compare the relative accuracy of the apparatus *with valves* and *with electric air impeller*, a more exhaustive set of tests were made with two well trained subjects four months later. Both series comprising 45 tests are reported in a condensed form in Table 1.

The 45 tests given in this table are 45 composite periods, each being the average of 3 distinct but overlapping periods established by taking three successive spirometer readings at the start, and three final readings about 10 minutes later. The pulse and the respiration rates given are also averages of from 4 to 8 counts for each. From December 30 to January 5, (tests Nos. 11 to 45) each day's observations consisted of 6 composite periods (5 on Dec. 30). Three of



FIGURE 3.—Benedict's "New" Portable Respiration Apparatus. Mounted ready for use. The Electric Air Impeller and the Carbon Dioxide Absorber are located inside the Spirometer chamber.

such periods with the valves, immediately followed or preceded a like number with the impeller. All six periods followed each other in close succession in the order indicated by the serial numbers.

To facilitate the comparison of the results each group of three tests is again averaged. There is no proof that the relatively small differences obtained might be due to the use of valves or impeller. The total average for the O_2 consumption per minute was 224 c.c. when the valves were used, as against 225 c.c. with the impeller.

When changing from the valves to the impeller, or *vice versa*, both the pulse and respiration, which are so readily influenced by even slight disturbing factors, failed to register any significant altered rate. Nevertheless, differences were obtained, the highest on January 2, amounting to less than 5 per cent. It must be admitted that such a variation might well happen in a like series of tests run throughout with one and the same apparatus. The chief



FIGURE 4.—An "Old" Benedict Portable, remodeled to conform to the "New." In operation the Air Impeller and the Carbon Dioxide Absorber shown on the stool are placed inside the Spirometer chamber.

and only appreciable cause for the differences recorded is strikingly put in evidence when the tests are tabulated in the order in which they were made each day, irrespective of whether the valves or the impeller were used first or last. It will be noticed that with the exception of August 19, which shows a difference of less than $2\frac{1}{2}$ per cent., and January 4, with one of less than $\frac{1}{2}$ per cent., all the other days' comparisons show a tendency to a higher rate of oxygen consumption and also of the pulse and respiration rate during the second series of the day's observations, irrespective of the method or apparatus used.

The total average for the O_2 consumption per minute was 222.5 c.c. for all first tests (a) as against 226.4 c.c. for all the corresponding second tests (b). The average for the pulse and the respiration is the same in both groups. A possibility of this kind was anticipated and the precaution taken to reverse, each day, the order of procedure, using the valves first one day and the impeller first on alternating days. Consequently the chief causes of the variations recorded are not to be ascribed to the kind of apparatus but to the tendency of the subjects to become slightly restless, an occurrence which might well be expected in prolonged observations of this kind.



FIGURE 5.—Improved Respiration Valve. Adaptable to various types of Respiration Apparatus, including the "Gasometer" type.

That the apparatus does give uniform and closely comparable results with the valves as well as with the impeller, has further been shown in many observations made during the past few months with clinical cases of all kinds. Results have also been checked in many such cases by the "Gasometer Method" with most satisfactory agreements.

The advantages in the use of valves as here suggested with Benedict's New Portable Respiration Apparatus, briefly stated, are the following:

1. Its use is available independent of any electrical energy or other source of mechanical power without the sacrifice of efficiency or of any degree of accuracy.
2. It is absolutely noiseless in operation. This is an advantage which is readily appreciated by operators as well as by nervous individuals, of whom there are a goodly number in the cases in which the use of the apparatus is indicated.
3. While no claim is made for any superiority in the accuracy of the results to be obtained by the use of valves in this type of apparatus, the even temperature of the circulating air maintained during a test period in the absence of the heating effect of a motor, should be recognized as a technical advantage.
4. Once properly adjusted the valves require practically no attention. We have had more or less trouble with impellers whether installed inside or outside the ventilating circuit, though we have, so far, run over one thousand tests

With Valves					With Electric Air Impeller			
1920 Subject Date	Test No.	O ₂ cc. per min.	Pulse per min.	Resp. per min.	Test No.	O ₂ cc. per min.	Pulse per min.	Resp. per min.
P.R. July 29	a 1	203	58	16	b 2	212	61	17
N.O.B. Aug. 18	b 4	212	60	13	a 3	208	59	13
J.E.C. Aug. 19	a 5	255	51	15	b 6	249	50	14
N.O.B. Aug. 20	b 8	225	65	13	a 7	224	64	12
F.H.S. Aug. 29	a 9	259	58	13	b 10	269	54	13
N.O.B. Dec. 30		218	68	15	14	224	68	14
	a 12	218	67	13	b 15	225	69	14
	13	220	68	12				
	Ave.	219	68	13	Ave.	225	69	14
N.O.B. Dec. 31		223	67	13	16	215	64	14
	b 20	223	68	13	a 17	225	67	13
	21	224	67	14	18	222	65	14
	Ave.	223	67	13	Ave.	221	66	14
N.O.B. Jan. 2 1921		217	64	13	25	226	64	14
	a 23	221	64	13	b 26	226	66	14
	24	217	63	13	27	230	67	13
	Ave.	218	64	13	Ave.	228	66	14
N.O.B. Jan. 3		224	64	13	28	215	62	13
	b 32	223	65	13	a 29	216	63	14
	33	222	67	14	30	219	61	14
	Ave.	223	65	13	Ave.	216	62	14
N.O.B. Jan. 4		223	66	13	37	224	67	14
	a 35	220	67	13	b 38	222	66	14
	36	226	68	13	39	221	65	14
	Ave.	223	67	13	Ave.	222	66	14
P.R. Jan. 5		204	60	13	40	200	67	14
	b 44	200	60	15	a 41	203	65	14
	45	202	62	14	42	201	64	14
	Ave.	202	61	14	Ave.	201	65	14
Total Ave.		224	62	13.6	Tot. Ave	225	62	14.0 -
		First Tests (a)			Second Tests (b)			
Total Ave.		222.5	62	13.6	Tot. Ave	226.4	62.2	13.8

TABLE 1.—The Use of Valves Replacing the Electric Air Impeller in Benedict's Respiration Apparatus. A Comparison of Results.

with the impeller inside the circuit, without a single fire. the absorber taken out of the spirometer chamber.

DESCRIPTION OF THE APPARATUS WITH VALVES.¹²

Fig. 7 shows the apparatus ready for use. It is placed on a table or stand by the bedside. Adjustment of the mouthpiece to the proper height is obtained by raising or lowering the horizontal support. The metal mouthpiece assembly slides on the horizontal bar, and can easily be removed for sterilization.

The location of the valves is given in the diagram, and the housing of the one placed outside and under the spirometer is plainly illustrated. Note the special feature of a central, yet individual opening to or from the spirometer chamber for each tube.

Fig. 8 shows how the apparatus is readily compacted for carrying. This illustration shows

For protection against breakage in carrying, the thermometer can be readily removed by merely unscrewing it.

With but one or two exceptions the various "makes" of respiration apparatus now on the market are of two distinct types:

1. The "Gasometer type", the use of which demands an accessory outfit for the analysis of the air collected in a Gasometer during a test.

2. The "Spirometer type", established by Benedict for the chief purpose of avoiding air analysis.

This second type with its delicate spirometer is perfectly adaptable without modification for the estimation of the "Vital Capacity", the clinical value of which is now strongly emphasized.¹³

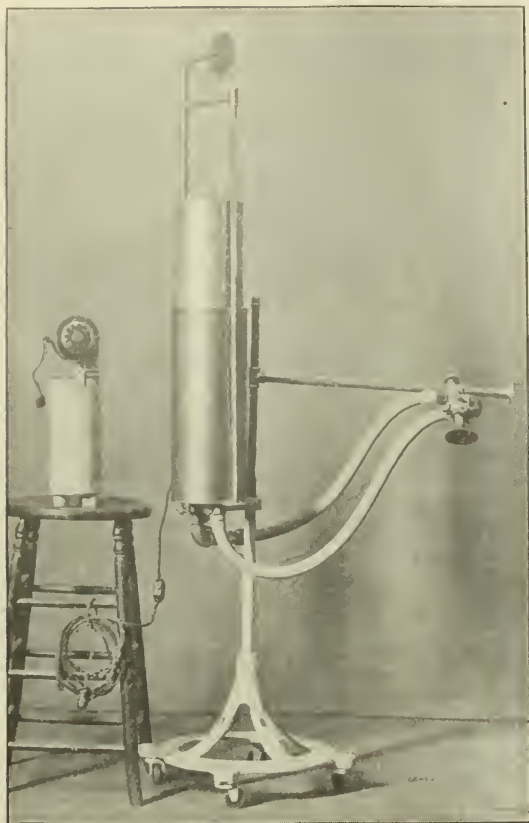


FIGURE 6.—Remodeled "Old" Portable, fitted with Valves. Compare with Figures 2 and 4.

The apparatus should also prove entirely satisfactory for the administration of oxygen in pathological conditions as advocated by Barach and Woodwell,¹⁴ and Haldane.¹⁵

SUMMARY

The adaptation of valves in the Benedict type of respiration apparatus (discarding the electric impeller) is shown to be very practical while fully preserving its precision for the estimation of the metabolic rate.

The "valve" apparatus, with other minor modifications, is described and its advantages briefly presented.

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8. See also: Hendry, Carpenter & Emmes: *Bost. Med. and Surg. J.*, Vol. 181, Nos. 10, 11, 12, Sept. 4, 11, 19, 1919.

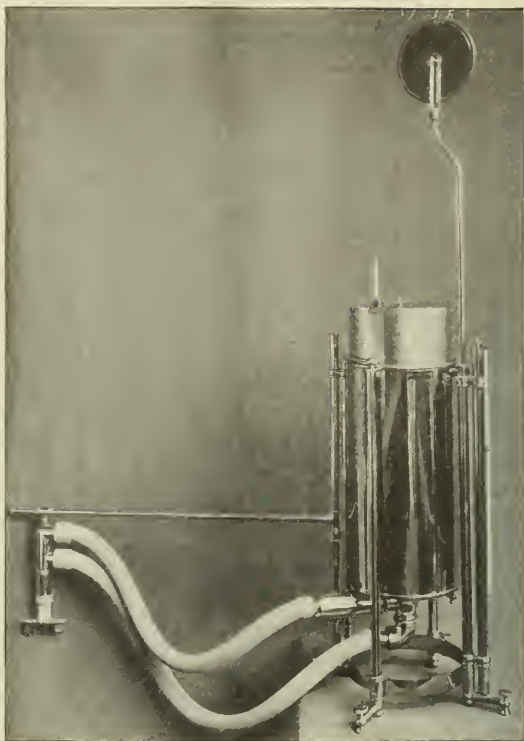


FIGURE 7.—The Benedict (Roth Modification, with Valves), ready for use.



FIGURE 8.—The Benedict (Roth Modification, with Valves), ready for carrying. The Absorber, which in use and in carrying, is inside the Spirometer, has been removed for illustration.

9. I wish also to emphasize that while it is readily appreciated that an inefficient air impeller or one which is running at too low a speed will inevitably give trouble, some operators ignore the fact that too strong an air current may, on the other hand, cause pressure in the region of the mouthpiece sufficient to require quite an effort in expiration to overcome it. A properly regulated impeller will insure, in a well conditioned apparatus, a freedom in respiration which cannot be improved upon in any other form of apparatus, whether the mask or the mouthpiece is used.
10. Jour. of Lab. and Clin. Med., Vol. 6, No. 12, p. 664, Sept., 1921, and Jour. Biol. Chem., Vol. 47, No. 2, p. 278, July 1921.
11. From the Mine Safety Appliance Company, Pittsburg, Pa.
12. The adaptation of valves in the apparatus, has opened the way for other modifications in its construction. I am greatly indebted to Mr. Warren E. Collins, for the mechanical skill which he has displayed not only in faithfully embodying the suggestions which I have offered but in introducing in its construction certain ingenious features which simplify the care of the apparatus and, to some extent also, its manipulation. Mr. W. E. Collins, 584 Huntington Ave., Boston, Mass., manufactures the Benedict type of respiration apparatus either with the electric impeller or with the valves.
13. Dryer, G.: The Normal Vital Capacity in Man and Its Relation to Size of the Body, *Lancet*, Aug. 9, 1919.
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Paper II.

TECHNIC

While it is an easy matter to make a good operator of an individual having no more than a high school education, the work should be under the direction of some one familiar with all the technical phases of the subject, and who is acquainted at least with the literature referred to in this series of papers.

Assemble the apparatus as illustrated in Paper I. Make sure that all connections are tight. The rubber tubing does not need to be wired in place if it fits tightly. Parts to be washed or sterilized after each patient can thus be readily removed. Fill the sealing chamber with water to about 4 inches from the top. The absorber is the most vital part of the apparatus and demands systematic attention. Use only well-sifted material and free from powder. Too coarse a grade of soda lime must also be avoided, that averaging the size of a pea being best. A dish shaped screen is provided for each can and should be properly in place, bottom side up, at the bottom of the can. Unless the material used is of a finer mesh than that recommended, the can may be filled completely. The kind of absorbent which is best for absorbing moisture as well as carbon dioxide is discussed in Paper III. of this series.

No very definite directions can be given with regard to the number of determinations which can be made with each fresh charge of the absorber. This depends upon the quality and the amount of material used, and also on the average duration of the tests. We have run from only 8 or 10 to over 75 tests of about ten to twelve minutes duration, on one charge, before

CO₂ could be detected in the air after it passed through the absorber.

A record should be kept of the number of tests run with each charge. Before it has reached the limit of its efficiency the air left in the spirometer chamber should be expelled at the end of each test through the O₂ cock into a test tube containing a few c.c. of barium hydroxide. When the presence of CO₂ is detected the charge in the absorber should be renewed.

Increased amplitude and rate of respiration during a test indicate accumulation of CO₂ in the circulating air due to an exhausted absorber or insufficient ventilation.

After filling, seal the can with the wide rubber band. Examine the valve. The lateral slits should barely come in contact with each other. This may be regulated by drawing the valve more or less over the metal tube. If properly adjusted, the valve will be absolutely noiseless and will never stick. The lateral slits may perhaps be enlarged to advantage by trimming the valve almost to a point with seissors.

See that the rubber gasket on the inlet at the bottom of the spirometer chamber is in place. Screw the can in fairly tight. Twice a week, or oftener if necessary, examine the contents. If material adheres to the screen and cannot be dislodged by shaking, empty the can, clear the screen and refill. If the contents are found to be relatively fresh yet, they can be returned to the can after removing only the caked or used-up portions and adding some fresh material. Have an extra container ready to replace the one in use when needed.

The operator should make it a practice of daily routine to himself breathe into the apparatus for a few seconds to ascertain whether the absorbers and all connections are unobstructed and permit of free breathing. No other test for ventilation is necessary.

As water of condensation may collect in the lower tube which carries the expired air directly to the absorber, it should be drained occasionally.

The technic is relatively easy and as far as the manipulation of the apparatus is concerned, is soon acquired. Success, however, depends primarily in securing and maintaining the basal conditions required in the subject. Fact, good judgment, self control, and a pleasing personality are indispensable in the operator. On the whole, girls are very adaptable to this type of work. But good equipment, good technic and the successful completion of an estimation is merely a good beginning towards a "worth-while" clinical application of the test. The clinician himself need not be a trained technician in metabolimetry but he should have a clear conception of all the requirements which a reliable determination demands, and should make sure that the work is properly carried on. He should have taken the trouble to study first of all, the Normal Standards, and should know that

"there is no inflexible standard for normal metabolism for any given age, weight, height, and sex, from which all normal individuals never vary."² With this fundamental knowledge the true clinician who is attracted to the application of metabolimetry in pathology will find in it a very promising field, but one which offers no "short cuts" to success.²

Only a brief exposé of the method of use of the apparatus is offered here, because a complete discussion of all the principles involved in the use of this type of apparatus is to be found in the references to the literature given in this series of papers.

The subject has been instructed to omit breakfast and has not partaken of any food or drink (except water) for 12 to 15 hours before the test. He should also abstain from smoking on the morning of the test. Briefly instruct the patient, in order to gain his confidence and insure cooperation. Note his height, weight and age; take his temperature once and the pulse and respiration several times during the next half hour, while he is resting comfortably, preferably in the position which is to be maintained from this time on, and until the test is completed.

With the bell up a few inches and a rubber stopper closing the mouthpiece, test for tightness by placing some weight (about 200 gms.) on the bell. The pointer against the millimeter scale must remain stationary during a minute or more. Remove weight and rubber stopper.

Expel the air completely from the bell and refill, not quite to full capacity, with pure oxygen. If properly balanced the bell will remain in position long enough to give time to connect. (If this cannot be done immediately after filling the bell, close the mouthpiece again with the rubber stopper until ready to proceed.) Insert the rubber mouthpiece. It is often preferable to let the subject do this himself. The simplest way to instruct the patient is for the operator to place one in his own mouth, showing how easy it is first to slip in one side of the mouthpiece, then the rest, with the two lugs between the teeth, the oval flange in front of the teeth and behind the lips which, as a final act, are drawn together around the tubular stem.

Now apply the nose clip and ask the patient to make a slight effort to blow air through the nose, while the operator listens for a possible leak through the nostrils.

Strange as it may seem, there are individuals who actually have to be shown that they can breathe through the mouth. With such proceed as follows: Let them first blow through the mouth while they themselves pinch the nostrils. Repeat with a rubber mouthpiece in the mouth, but not yet attached to the apparatus. Next apply the nose clip. By this time there will probably be no difficulty in proceeding as usual.

"Breathe easily," "Take it easy," "Relax," "Forget your breathing," or some similar simple

admonition is occasionally and, at this time especially, advisable with the uninitiated.

Wait one or two minutes before taking the first reading to allow a degree of relative uniformity of conditions to be established not only in the apparatus but also in the subject.

Now watch the pointer which moves with inspiration and expiration against the millimeter scale. Take mentally, successive readings at the end of each of a series of down strokes which mark the end of expirations. Note the position of the pointer at the end of what you judge to be an average expiration and instantly start a stop-watch, or note the time on an ordinary watch according to a simple method advised by Benedict.³ To minimize the inaccuracies which will often occur in taking readings by this method, two, or better still, three readings (A, B, C,) should be taken and timed successively. If stop-watches are used three are required and should be labeled A, B, C. They are started successively the moment the corresponding reading is taken.

This done, record immediately the temperature indicated by the thermometer on the spirometer bell, and a few minutes later note the barometric pressure.

It is advisable to have an assistant to check all the readings of the operator and to record the pulse and respiration rates several times during the test, while also keeping watch of the subject.

About 10 minutes are allowed for a test. At the end of the test, note again the spirometer temperature. Do this immediately before or after taking a second set of spirometer readings, as at the start, and at the moment the stop-watches are successively stopped.

Next, make a record of the time registered by each stop-watch for the corresponding periods A, B, and C. Thus, each test consists of one composite period which is the average of the results based on the readings taken for each of the three individual periods A, B, and C, which are calculated separately. The one barometric reading and the average of the two temperature readings serve for all three periods in the calculation.

One or two other tests, of two or three periods each, can follow as desired. In this case it is usually advisable to remove both the nose clip and mouthpiece and let the subject enjoy the change while the spirometer is refilled with oxygen before proceeding with the next test.

With trained subjects, if they so prefer, the spirometer can be replenished and the test repeated without disconnecting.

Meanwhile the next patient to be examined goes through the usual preliminaries and is resting on a comfortable bed or couch, or better yet, in a wheel chair which can be wheeled into place by the apparatus without disturbing the patient. This saves time.

The outfit should include an extra mouth-piece assembly and rubber mouthpiece. *Between patients these parts can be changed without delay, and the apparatus "ventilated" by raising and lowering the bell several times.*

After use the metal mouthpiece assembly is thoroughly scrubbed with strong soap and sterilized. Treat the rubber mouthpiece similarly, though it will not stand long boiling. Do not use any disinfectant likely to give an odor or taste to the rubber. The large rubber tubes can be treated in the same manner whenever it is thought necessary, chiefly for the sake of cleanliness, as the possibility of the transmission of infection from one subject to the next has been shown to be very remote when ordinary precautions are taken.⁴

With the metabolic rate found, the report should also include the average pulse and respiration rate. Other observations having any bearing on the degree of success with which the determination was made are also noted on a blank printed for this purpose which suggests the items to be systematically recorded.

No hard and fast rules can be laid down with regard to the number and frequency of observations advisable in any given clinical case. No matter what the case investigated is, no definite conclusions should be drawn on the result of one test only, nor of two or three consecutive tests made the same day. The ideal method, for research work at least, is that advocated by Benedict which calls for, in any given day's observation, three successive composite periods, the first of which may be discarded in the calculations, the results for the day being the average of periods two and three.

In clinical work it will often be necessary to deviate from this method because many patients cannot give a continued coöperation and remain quiet and relaxed long enough. The rule enforced in the Metabolism Laboratory of the Battle Creek Sanitarium is not to issue the initial report of a case, except when urgent, until the results obtained have been confirmed by at least two tests taken as a rule on two or three successive days. The report is based on the average results of two successful tests which do not vary over ten or fifteen per cent. of each other.

The method of calculation is presented in a subsequent paper.

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Current Literature Department.

ABSTRACTORS.

GERARDO M. BALBONI
LAURENCE D. CHAPIN
AUSTIN W. CHEEVER
ISADOR CORIAT
ERNEST M. DALAND
RICHARD S. EUSTIS
ROBERT M. GREEN
JOHN B. HAWES, 2D
JOHN S. HODGSON
FRED S. HOPKINS

CHARLES H. LAWRENCE
HERMAN A. OSGOOD
FRANCIS W. PALFREY
EDWARD H. RISLEY
WILLIAM M. SHEDDEN
GEORGE G. SMITH
JOHN B. SWIFT, JR.
WILDER TILESTON
BRYANT D. WETHERELL

PRIMARY CARCINOMA OF THE URETER. REVIEW OF THE LITERATURE AND REPORT OF A CASE.

JUDD, EDWARD S., and STRUTHERS, JOHN E. (*Journal of Urology*, August, 1921). The first case, reported in 1878, was discovered at necropsy. Albarán, in 1896, probably was the first to diagnose a case correctly before operation or necropsy. His diagnosis was confirmed at operation. He reported this case in 1899, another in 1902. In the 25 cases reported in the literature, calculi were given as the probable cause in six. The incident of ages is between 40 and 60. Zironi considers leukoplakia as a probable origin of both benign and malignant neoplasms. Hydronephrosis was definitely stated to be present in 40 per cent. of the cases.

The principal symptoms are hematuria, swelling, and pain, the same as with tumor of the kidney.

As regards treatment: When the kidney function has been proved useful, it appears logical to extirpate the tumor and perform a uretero-cystostomy, or if this operation is impossible, anastomose the ureter into the intestines. Marston is enthusiastic over his success in destroying with the electric current, polyps in the ureter in two cases. In diagnosis and treatment the multiplicity in villous tumors is particularly to be feared. [B. D. W.]

A SCIENTIFIC STUDY OF THE NORMAL HUMAN URETER BY FRACTIONAL URETER-PYELOGRAPHY.

GOLDSTEIN, ALBERT E. (*The Journal of Urology*, August, 1921). The calibre of the normal human ureter to be expressed in terms of figures varied between $2\frac{2}{3}$ to $3\frac{2}{3}$ mm. in diameter. The ureter possesses certain normal powers of distention. The normal ureter and pelvis have a certain definite time of expelling their contents, varying between three to seven minutes, with a solution of 13.5 per cent. of sodium iodide. The ureter is best studied by making a ureterogram with the tip of the catheter low in the ureter or entirely out. The possibilities are exceptional in studying the ureter and renal pelvis by fractional or serial uretero-pyelography. [B. D. W.]

THE TRANSPERITONEAL APPROACH TO THE KIDNEY, ITS INDICATIONS AND LIGATIONS.

QUINBY, WILLIAM C. (*The Journal of Urology*, August, 1921). This procedure of ligation of the renal vessels as the primary attack on a kidney subsequently to be removed is important and should certainly be carried out as the first step in the removal of renal tumors. Possibly tuberculosis of the kidney should be similarly attacked. The renal vascular pedicle is easily reached through the retroperitoneum by transabdominal approach. Such ligation may be a substitute for nephrectomy where this operation has become impossible. [B. D. W.]

RADICAL TREATMENT OF CANCER OF THE BLADDER.

SMITH, GILBERT (*Journal of Urology*, August, 1921). The use of radium in cancer of the bladder of a really inoperable type is a therapeutic measure frequently suggested by those unfamiliar with the subject. In twenty-four cases of this type, the application of radium emanation to the interior of the bladder was tried out faithfully at the Huntington Memorial Hospital for Cancer Research. Of these, only three showed definite retrogression of the growth; several showed temporary cessation of hemorrhage and a diminution of cystitis. As a result of this experience, the conclusion is that the only really effective way to apply radium in cancer of the bladder is by the implantation of bare emanation tubes or of needles directly into the base of the growth.

Thus if partial cystectomy or the use of radium does not offer reasonable chances of success, then the urinary stream should be diverted and the bladder opened and treated extensively with radium, or removed entirely.

There are three ways of diversion: (1) lumbar nephrostomy, which is probably the safest method; this needs much after-care for the drainage tubes; (2) Ureterostomy; here the orifices tend to contract and the urine cannot be carried off as conveniently as in the preceding procedure; (3) uretero-enterostomy; if this is done successfully, it is vastly more satisfactory.

Here are three dangers: general peritonitis, ascending infection of the kidneys, cicatricial closure of the ureter.

The author then gives four cases of uretero-enterostomy. The results show that the implantation of ureters within the bony pelvis is a technically difficult procedure. The limited amount of ureter available, and the possibility of kinking the ureter at the point where it issued from the peritoneum, made anastomosis a difficult and uncertain procedure. A much better procedure is to operate upon one ureter at a time; through an incision just above the anterior superior spine, a loop of colon can be drawn out through an incision in the peritoneum and the anastomosis made extraperitoneal. All of these cases were too far advanced even for total cystectomy. So far as the kidney drainage was concerned, they were encouraging.

The author believes that total cystectomy should be done much more frequently than it is done at present; that cancer of the bladder should be treated in as radical a way as we treat cancer in the breast or the stomach. [B. D. W.]

A CASE OF DOUBLE-SIDED DEFORMITY OF THE URETERS.

BRATTSTRÖM, E. (*Acta Chirurgica Scandinavica*, Vol. LIV, fasc. II). A case of reduplication of both ureters is reported, in which the ureters on each side ran parallel, without crossing one another, from kidney to renal pelvis. Each kidney possessed two separate pelves. All four ureters put out strong jets of indigo carmine. The relationship of the ureters was proved by pyelography first, later by operation. [G. G. S.]

CLASSIFICATION AND MECHANISM OF FRACTURES OF THE LEG BONES INVOLVING THE ANKLE.

ASHURST, A. P. C., AND BROMER, R. S. (*Archives of Surgery*, January, 1922). Ashurst and Bromer present an extensive anatomic and surgical study based on three hundred cases from the Episcopal Hospital, Philadelphia. The article occupies 78 pages, is profusely illustrated with drawings and diagrams and x-ray prints to illustrate the classification in the text. The article is not suited for abstract, but is of interest to those dealing especially with fractures. [E. H. R.]

STUDIES IN EXPERIMENTAL TRAUMATIC SHOCK.

CANNON, W. B. (*Archives of Surgery*, Jan., 1922). This author writes a 22-page article dealing in detail with the experimental and clinical side of this question. He believes that there is ample evidence of the toxic factor in wound shock. He describes the initiatory factors in shock, the character of injuries associated with wound shock, cites experimental evidence of a toxic origin of secondary wound shock, and gives a technical explanation of traumatic toxemia followed by clinical evidence of traumatic toxemia. The experimental and clinical testimony, most of which was gathered in the last two years of the war, gives quite a new turn to our ideas regarding the nature of shock. The paper is well presented and extremely interesting. [E. H. R.]

FURTHER OBSERVATIONS ON THE LYMPHATIC ORIGIN OF CHOLECYSTITIS, CHOLEDOCHITIS, AND THE ASSOCIATED PANCREATITIS.

GRAHAM, E. A., AND PETERMAN, M. G. (*Archives of Surgery*, January, 1922). These authors present a paper well illustrated with histopathological photographs showing the undoubted relationship between infections entering the body by way of the tonsils, intestines, etc., which substantiate their theories regarding the origin of inflammations of the gall-bladder and common duct and of the pancreas through the lymphatic system of the liver. Clinically, in practically all of these cases there is enlargement and tenderness of the liver preceding or associated with the gall tract inflammation. Extensive animal experimentation was conducted to confirm their theory.

They state that probably in the majority of cases cholecystitis represents the direct extension to the wall of the gall-bladder from a liver already inflamed. This infection is apparently brought to the liver by the portal vein and extends from there undoubtedly by way of the lymphatics of the liver. This explains the often noted association of appendicitis, peptic ulcer, typhoid fever, suppurating hemorrhoids, etc., with gall-bladder disease. [E. H. R.]

NEW MECHANICAL PROBLEMS IN THE BRONCHIOSCOPIC EXTRACTION OF FOREIGN BODIES FROM THE LUNG AND OESOPHAGUS.

JACKSON, C. (*Annals of Surgery*, January, 1922). Jackson presents one of his characteristically beautifully illustrated and detailed articles on this subject, in which he is pre-eminently expert. His diagrams of the situations of foreign bodies in the oesophagus and the common errors in failing to locate them are most illuminating. His methods of extracting an open pin, hair pin, or hook which is imbedded in the wall of the bronchus, or the oesophagus, are extremely clever. The article is of especial importance and interest to the surgeon working along these lines. [E. H. R.]

PERSISTENCE OF GASTRIC ULCER AFTER GASTROENTEROSTOMY.

KLEIN, EUGENE (*Annals of Surgery*, Dec., 1921). Klein writes as follows:

Gastroenterostomy performed for the cure of gastric ulcer may be followed by—

- (a) Hemorrhage. In one-half of the cases this probably comes from the unhealed ulcer.
- (b) Perforation of an unhealed ulcer.
- (c) Carcinomatous degeneration of the ulcer.
- (d) Persistent or recurrent gastric symptoms. In some of the cases these symptoms are due to the unhealed ulcer.

Gastric ulcers may develop in the stomach in the presence of a gastroenterostomy. This does not refer to gastro-jejunal ulcers.

A case is reported where the persistence of gastric symptoms was due to an unhealed prepyloric ulcer following a well-performed gastroenterostomy. The symptoms yielded to partial gastrectomy.

If at all possible the surgical treatment of peptic ulcer should include the removal or destruction of the ulcer.

It is unfair to compare mortality statistics of partial gastrectomy and gastroenterostomy, since the former operation can cure severe cases in which the latter is entirely without effect and might just as well not have been done. [E. H. R.]

MALIGNANT NEOPLASIA IN THE GALL-BLADDER.

MAGOUN, J. A. H., JR., AND RENSHAW, K. (*Annals of Surgery*, December, 1921). Magoun and Renshaw write as follows:

Malignancy of the gall-bladder is not an uncommon occurrence.

Carcinoma is the most common type of neoplasia found; sarcoma is exceedingly rare.

Gallstones are complications in a very large number of cases.

Heredity seems to have little influence in the development of malignancy in this organ.

Females and males are afflicted in the ratio of about four to one.

Seventy-five per cent. of cases occur between the ages of fifty and seventy.

In most cases there has been a history of gallstones for some time.

Early cholecystectomy for stones will either prevent the development of malignancy or find the condition in its incipency.

Late operation is of little value except as a diagnostic procedure. [E. H. R.]

HAEMOSTASIS IN SUPRAPUBIC PROSTATECTOMY.

FISCHER, H. (*Annals of Surgery*, Dec., 1921). This author discusses in detail the various methods used by the foremost genito-urinary surgeons in the control of hemorrhage after removal of the prostate, and ends by stating it his belief that the gauze tampon is after all of most effect.

His own method is to pack the cavity left by the prostate with gauze until it is fairly dry, then after removing this first packing insert a second gauze pack to which a silk thread is tied. He then sutures the bladder wall completely over the prostate cavity and the tampon. This prevents leakage of urine on to the tampon, loosening of the tampon from its bed, and onset of later hemorrhage; the bladder is closed to a drainage tube, and a small drain is put in the prevesical space. After three or four days the sutures in the base of the bladder become loosened, and tampon can be withdrawn by pulling on the silk string, drainage tube being removed at the same time.

The author calls this "the lost tampon method," has used it for six years, and has had no postoperative hemorrhage and no untoward symptoms which could be attributed to the method. He believes it prevents infection of the fresh cavity, as well as hemorrhage. [E. H. R.]

SPECIAL POINTS IN THE TECHNIC OF OPERATIONS ON THE THYROID GLAND.

CRILE, G. W., AND LOWER, W. E. (*Annals of Surgery*, Jan., 1922). These authors present a very practical article on this subject. They believe that as a rule too much of the gland is ordinarily left, resulting many times in the recurrence of symptoms. They point out the dangers of turning out the gland with

the finger, especially when it is adherent to the trachea or is situated below the clavicle. Large veins may be often torn, and undue pressure upon the laryngeal nerves results in sudden death. They discuss respiratory obstruction during operation, interference with the mechanism of swallowing, and advise the immediate stopping of the operation if there is any doubt during it as to the immediate outcome. They believe that the delayed closure of the wound often-times saves the patient from sudden death, both because the patient can be returned to bed before any injury is done, and also the amount of drainage of toxic material from the wound following delayed closure is often of great value. They advise against x-ray treatment because of the following disadvantages:

(a) The dose required to produce a given effect is at best a guess.

(b) Relapses are common.

(c) The delay in unsuccessful cases leads to serious damage to certain organs—myocardium, liver, nervous system, etc.

(d) In case of operation later, the scar tissue and adhesions caused by x-ray are a handicap. The dilemma in the use of the x-ray is myxedema or relapse. If the dose is sufficient to kill all the thyroid cells, myxedema results; if the dose does not kill the cells, they recover and there is relapse. [E. H. R.]

STUDIES IN EXHAUSTION: III. EMOTION.

CRILE, G. W. (*Archives of Surgery*, Jan., 1922). Crile writes as follows:

The emotive response of timorous animals is a commonplace. As a human experience, it is universal. That it may be graded in intensity up to a critical point is acknowledged; that it may be overwhelming and suspend function is commonly observed. In our researches, we used many animals, and found, as Colonel Mott has concluded, that the emotive response is one of the most powerful of which the organism is capable. Emotion causes a more rapid exhaustion than is caused by exertion, or by trauma, excepting extensive mangling of tissue, or by any toxic stimulus except the perforation of viscera. Apparently, in birds, in particular, the emotion of fear may instantly overwhelm the organism, as when a bird is unexpectedly confronted by a snake.

In our experiments, fear caused profound changes in the cells of the brain, the liver, and the suprarenals; in some cases an acidosis developed acutely; in some cases albumin and sugar appeared in the urine; the epinephrin output, as has been demonstrated by Cannon, was increased; the electric conductivity of the brain, the liver, and of other organs was altered.

In short, our researches have shown that the emotions drive the organism with extreme intensity; that, like trauma or exertion, emotion may drive the organism within the limits of normal response, or so overwhelmingly as to suspend the normal functions and reduce the individual to a state of complete, cold prostration. In other words, emotion may cause exhaustion; it may cause shock. [E. H. R.]

TRANS-ORBITAL PUNCTURE OF THE GASSERIAN GANGLION.

VAN ALLEN, C. M. (*Ann. of Surg.*, November, 1921).

This author presents a very thorough and interesting treatise on this interesting subject. He outlines indications for the use of this particular operation and describes the technic of Harris and Hartel. He takes up the anatomy in detail and graphically describes the introduction of the needle from without through the inner canthus of the eye along the orbital wall to the Gasserian ganglion. He uses a Patrick cranial needle 10 cm. in length and 1½ mm. in diameter equipped with a closely fitting stylet.

There are several pages of drawings made from anatomical subjects showing the depth of the ganglion from the inner canthus of the eye and the general direction which the needle should take, also illustrations of five clinical cases on which this technic was successfully carried out. These were largely extensive lesions of the cheek in patients who were unable to take a general anaesthetic and in whom a purely local anaesthetic was not feasible.

The author makes the following statement in conclusion:

"It is evident that whatever injury is inflicted upon the root of the ganglion by the injection of alcohol will be shared to a less extent by neighboring nerves. This is true, no matter by what approach or technic the needle is entered, and transorbital puncture is no exception. Accordingly, until some means shall have been discovered of preventing this widespread diffusion of the alcohol, we cannot at all recommend the puncture in the therapy of trigeminal neuralgia.

"Other possibilities for the employment of the technic suggest themselves. It affords a method of withdrawing cerebrospinal fluid directly from the basilar cistern. Wider experience may justify an attempt to use this route for therapeutic applications to the central nervous system. The effect of air injections in the x-ray diagnosis of intracranial disorders is likewise worthy of investigation.

"But in the meanwhile the results of this work, both anatomical and clinical, lead us to believe that transorbital puncture of the Gasserian ganglion furnishes a relatively simple means of securing block anaesthesia for operations in the territory supplied by the trigeminus, fully justified in cases where general anesthesia is contraindicated." [E. H. R.]

STUDY OF METHODS OF PROCEDURE IN RESECTION OF THE OESOPHAGUS.

BIDGOOD, CHARLES Y. (*Ann. of Surg.*, November, 1921) reviews the various methods of forming a new oesophagus as advocated by various European surgeons. He describes particularly the Jiana-Roepke method of making a tube from the stomach and the method of taking a loop from the jejunum, and concludes that the most successful method is that in which a skin tube has been made to hold the new oesophageal tube. An adequate bibliography is appended. [E. H. R.]

PEPTIC ULCER, PRIMARY AND SECONDARY.

DEAVER, JOHN B. (*Ann. of Surg.*, November, 1921). Deaver presents a very "meaty" article upon this important subject. Statistics show that this ulcer may occur from a few days to many years after the primary operation. The shortest known interval is ten days, while at the other extreme seven years have been known to have elapsed between the operation and the secondary ulcer formation.

He says that preliminary medical treatment of this type of ulcer is what he would term "medical pussy-footing"; in other words, it is courting disaster in the shape of hemorrhage, perforation, and, in certain cases, of carcinoma. It is after the original treatment of peptic ulcer either by gastroenterostomy alone or combined with the excision of the ulcer or by pylorotomy, partial gastrectomy, or sub-total gastrectomy, that medical treatment has its greatest value.

It takes three weeks or more for the margin of the gastroenterostomy to heal. In order, therefore, to obtain the best results from surgery, it is of the utmost importance to institute judicious medical treatment mainly in the form of alkalis immediately after operation, and to continue it for at least a month. The administration of alkalis after a posterior gastroenterostomy is adopting nature's manner of neutralizing the acid gastric juice through the medium

of the bile and the pancreatic secretion, which relieves the stomach by the way of the new stoma.

The author emphasizes his belief that the appendix is the most common source of the infection which produces secondary gastric ulcer. It is not out of place to try a course of medical treatment before subjecting the patient to operation for secondary marginal ulcer, but surgery is in the majority of cases the only method of obtaining permanent relief.

[E. H. R.]

A TECHNIC FOR LEG AMPUTATION.

ORR, THOMAS G., (*Ann. of Surg.*, November, 1921).

Orr presents a very rational and seemingly more than usually adequate method of amputation of the lower extremity.

He makes a long anterior and a short posterior flap in order that the scar may be placed in a posterior position both to free it from possible attachment to the bone or from pressure by the artificial limb. The deep fascia is dissected from the posterior flap in such a way that it may later be drawn up over the end of the muscles and stump in order to give a better bearing surface. The muscles are gathered over the ends of the bone with a purse-string suture, the edge of the tibia is beveled off anteriorly so that there shall be no sharp projecting edge. The nerves are carefully freed and injected with absolute alcohol and are cut short. The anterior flap of fascia is then tacked down over the posterior flap, making an adequate buffer. A small drain is inserted laterally.

The method is well illustrated by excellent drawings.

[E. H. R.]

PYLOROSPASM IN ADULTS: ITS MEDICAL AND SURGICAL TREATMENT.

J. M. T. FINNEY AND JULIUS FRIEDENWALD. (*Am. Jour. Med. Sci.*, October, 1921, clxii, No. 4).

Pylorospasm may exist in various types: the neurotic, the irritative, and the reflex. The authors find, however, that as a pure neurosis, pylorospasm is rather uncommon, and that, in a large percentage of cases, pylorospasm is secondary to some irritation in the stomach itself or appears as the result of disease of some other organ. It is quite commonly observed secondary to some gastric or abdominal affection, as in gastric or duodenal ulcer, cancer of the pylorus, enteroptosis, gall-bladder disease, appendicitis, renal disorders and diseases of the genito-urinary organs.—(Therefore the diagnosis of "gastric neurosis" is permissible only after exclusion of all intra-abdominal pathology.)

The symptoms vary in intensity according to the degree of spasm. They may vary from simple sense of discomfort in the epigastrium, usually accompanied by acid eructations or regurgitation, to severe pain and vomiting. Characteristically, the symptoms appear from two to three hours after meals, and are relieved by vomiting.

Examination during the attack shows tenderness in the epigastrium, and a tumor, due to gastric contraction, may be felt in thin patients. Hyperchlorhydria can usually be demonstrated. The greatest aid, however, is afforded by roentgenology, a combination of fluoroscopic observation and roentgenograms affording the best evidence. Such a study not only determines the presence of spasm, but also shows whether it be due to organic disease or is of purely nervous origin.

Treatment consists first in overcoming or eliminating the primary disorder before attacking the spasm. (Often this is the only treatment needed). If of purely nervous origin, change of scene or a rest cure may be advisable. All irritating food should be excluded from the diet. For the pain, atropin, in full doses, hypodermically, is the most useful drug. Adrenalin, advised by Stockton and Rogers, has been successful in some cases.

In those intractable forms which have resisted all medical treatment, pyloroplasty has furnished satisfactory relief. The writers believe "that pain of every character in the upper abdomen should be carefully studied clinically, so that if operation be undertaken for any cause and no explanatory lesion be observed, the advisability of performing a pyloroplasty may be considered,—provided, of course, that definite evidence of pylorospasm has been previously noted. This fact is of the utmost importance, in as much as the spasm is extremely liable to relax under anaesthesia, and the actual condition may, therefore, be entirely overlooked in the course of operation."

[C. H. L.]

SOME EXPERIENCES WITH THE MELTZER-LYON METHOD OF DRAINING THE BILIARY SYSTEM.

BASSLER, LUCKETT, AND LUTZ. (*Am. Jour. Med. Sci.*, November, 1921, clxii, No. 5).

This paper is based on clinical cases and operation observations, as the writers feel that evidence thus obtained, is more accurate and worth while than that afforded by animal experimentation, as regards the particular questions which they wish to answer.

Acting upon Meltzer's "law of contrary innervation," Lyon adopted the use of the duodenal tube and instillation of 25% solution of magnesium sulphate into the duodenum as a diagnostic test for diseases of the gall-bladder, and as a means of treating biliary conditions. He divides the bile obtained into "A", "B", and "C" bile, and makes certain deductions from the amount and character of each kind obtained.

The writers found, by direct observations on six patients during operation, that introduction of a 25% magnesium sulphate solution into the duodenum caused no contraction or change in tension of the gall-bladder. In two cases bile-stained fluid escaped from the outer end of the tube before anaesthesia was commenced, but at operation the tube was found not in the duodenum but in the stomach. They do not agree with Lyon's deductions from the color, specific gravity and other characteristics of aspirated bile, and advance careful evidence in support of their criticism. As a result of their observations, their most important conclusions are:

That Meltzer's "law of contrary innervation" is not proved, and this throws into doubt any specific effect of relaxation of the sphincter odii and contraction of the gall-bladder induced by a magnesium sulphate solution.

That the margin of error in deducting from the presence of mucopurulent flakes, pus cells, inflammatory debris, bacteria and cells in the aspirated bile as positively coming from the gall-bladder is too great for clinical deduction.

That it is erroneous to deduce clinically in both amount of biles obtained in any gradation (A, B, C, and D), or by specific gravity estimations as to whether bile stasis exists or not.

That when true pathology exists, the method is a poor substitute for proper surgery. [C. H. L.]

DOES METASTATIC GOITRE EXIST?

BEVARD AND DUNET (*Revue de Chirurgie*, lix.-1921) have reviewed 44 cases in which the claim had been made that a benign goitre could give rise to metastases and have come to the following conclusions:

(1) The above erroneous notion was first introduced into thyroid pathology by Cohnheim, who described a thyroid tumor as benign which Wollfler declared to be malignant.

(2) This notion has persisted because of many reports of metastases in the cases of so-called benign goitres, although in a great majority of instances there was no microscopical examination of the goitre itself or the examination was very incomplete.

(3) The so-called metastatic goitre is, in reality, a neoplastic one, and the thyroid gland must be ruled by the general laws which govern the evolution of tumors: only thyroid neoplasms give rise to metastases.

(4) In the presence of a metastatic tumor, usually found in bone, which has been shown microscopically to be of a thyroid nature, the gland itself should at once be examined for any pathological changes. Macroscopically the thyroid may be enlarged or may show a small nodule clinically benign.

(5) If a secondary tumor has been discovered, the absence of clinical signs of malignancy in the thyroid does not justify the conclusion that the goitre is benign.

(6) The sole means of deciding the question is by histological examination, and that made in serial sections and of the whole lesion. [W. M. S.]

BENIGN TUMORS OF THE STOMACH.

EUSTERMAN, G. B., AND SENTY, E. G. (*Surgery, Gynecology and Obstetrics*, Jan., 1922). These authors write as follows:

1. Benign tumors of the stomach are rare and constitute only 1.3 per cent of all gastric tumors that have come to operation. The actual proportion of benign new-growths to malignant new-growths or ulcerations is as 1 is to 200.

2. Myomata and fibromata constitute the largest group, gastric polyposis the most infrequent.

3. About 50 per cent of benign tumors are found in patients more than 40. There is no characteristic syndrome and gastric chemism ranges from achylia to hyperacidity with hypersecretion. The summation of evidence favors the diagnosis of gastric cancer.

4. The majority of the tumors are situated in the region of the pylorus, the greater curvature, anterior and posterior walls.

5. The smaller tumors are practically symptomless unless situated at the orifices or unless multiple.

6. Common complications are recurring hemorrhage, which occurred in 37 per cent., and pyloric obstruction which occurred in 25 per cent. Palpable mass, food retention, or 6-hour barium retention is less frequent than in gastric cancer.

7. Often patients with benign gastric tumors are refused operation because the condition is regarded as malignant and inoperable. The true nature of the lesion is discovered only when the patients insist on operation.

8. The surgical end-results are excellent.

[E. H. R.]

A CONSIDERATION OF THE RELATIVE MERITS OF RESECTION AND GASTRO-ENTEROSTOMY IN THE TREATMENT OF GASTRIC AND DUODENAL ULCER.

DEQUERVAIN, F. (*Surgery, Gynecology and Obstetrics*, Jan., 1922). DeQuervain writes as follows:

1. That 90 per cent. of ulcer recurrences, peptic ulcer and other disturbances, occur in the first 4 years after operation, so that statistics which depend on results reported earlier than 4 years after operation are apt to show too favorable results. Observations made in the first 4 years after operation do not contain all the possible sequelae, and therefore later observations must be made in order to secure the final results.

2. That simple gastro-enterostomy produces in all forms of gastric ulcer about the same early results—somewhat more than four-fifths cure or improvement approximating cure.

3. That observations made over longer periods and including all cases show for gastroenterostomy for all types of gastric ulcer, a cure or improvement in 75 per cent of cases. In ulcers at a distance from the

pylorus the average results are no less favorable than in those at the pylorus.

4. That the radical methods, irrespective of interval, show results similar to those in gastro-enterostomy at early periods, with a cure in about 80 per cent.

In these facts there lies a satisfactory reason for employing resection even though it involves somewhat greater operative risk. At this point we would state that this is true only when we do not hold ourselves to a fixed rule but rather are governed by the conditions which confront us. Among such conditions may be mentioned the location of the ulcer and the resistance of the patient; also the conditions under which the operation is to be carried out, for there are conditions independent of the patient under which it is better that the surgeon does not resect, even if resection can be done. We include here among other things technical experience and the type of assistants present. It is pleasant to be able to determine by statistics that one can with a good conscience decide not to resect if these external conditions are not satisfactory. Regardless of the type of ulcer, one can do the patient a greater service by performing a good gastro-enterostomy than by doing a resection under unfavorable circumstances. [E. H. R.]

OBSTETRICAL PARALYSIS OF THE PERONEAL NERVE.

WHITMAN, A. (*Surgery, Gynecology and Obstetrics*, Jan. 1922). Whitman writes as follows:

1. In any paralysis below the knee occurring after prolonged, difficult labor or instrumental deliveries, the possibility of intrapelvic injury to the sciatic nerve should be borne in mind.

2. An immediate orthopedic and neurological examination should be made, with a view, if possible, to establishing the differential diagnosis.

3. Apparatus should be immediately applied, to prevent deformity, and to enable the patient to get about with the maximum facility.

4. The prognosis as to ultimate recovery should be exceedingly guarded. [E. H. R.]

ESSENTIAL HAEMATURIA.

LEVY, C. S. (*Surgery, Gynecology and Obstetrics*, January, 1922). Levy writes as follows:

1. The diagnosis of essential haematuria should be made only when all known urological methods have been employed with negative findings. It is a purely clinical diagnosis, indicating renal bleeding of unknown etiology.

2. This paper comprises the studies of thirty cases diagnosed as essential haematuria, based on clinical studies supplemented by conclusions drawn from a questionnaire, the questions of which were so framed as to include the possibility of subsequent development of nephritis, urinary tuberculosis, calculi of urinary tract, renal tumor, operative procedure upon the kidney involved, and recurrences of haematuria.

3. In 36 per cent. of the cases the onset of the haematuria occurred in the fourth decade of life.

4. The bleeding in essential haematuria is for the most part symptomless.

5. In most of the cases the haematuria developed spontaneously. Exertion does not appear to play a significant role in the origin of these haematurias.

6. The right kidney was responsible for the bleeding in 17 cases and the left in 13 cases. In no case were both kidneys involved.

7. The results of operative procedures have not been better than those of non-operative methods. In our series there were recurrences after decapsulation and two nephrectomies. Nephrectomy is the only operation ever indicated, and that only as an emergency measure to save a patient from bleeding to death, and

not as a routine measure for intermittent haematuria over a long period.

8. The non-operative methods have been used with success. These have consisted of intrapelvic injection of silver nitrate and adrenalin, and of the passage of a ureteral catheter; the oral administration of calcium lactate and the subcutaneous or intramuscular injection of horse-serum. Of these the intrapelvic methods have given the best results, and it is of interest to note that in a large number of the cases of the series the urine had become clear within a week or ten days after this form of treatment.

9. It is suggested that the pelvis of the kidney be completely distended with fluid whenever intrapelvic injections are employed. That distention is an important factor in this therapy is shown in many cases in which this haematuria has temporarily disappeared after the injection of an opaque medium for pyelographic studies.

10. The 30 cases have been followed from 1 month to 12½ years. There have been 12 cases with no recurrences of the haematuria, and 18 cases with recurrences. Of the latter there are 2 whose urine is bloody at the time of writing. It is not safe to predict cures.

11. Spontaneous cessation of the bleeding occurs frequently in essential haematuria.

12. The general health is usually not affected by the loss of blood in essential haematuria.

13. From an analysis of the questionnaires, we can easily infer that none of the patients has developed nephritis, renal or ureteral calculus, tuberculosis in any form, or renal tumor, and none has had an operation on the genito-urinary tract.

14. Prognosis in essential haematuria is favorable in spite of the loss of blood and the recurrences of haematuria. [E. H. R.]

CONGENITAL OCCLUSIONS OF THE INTESTINES.

DAVIS, D. L., AND POYNTER, C. W. M. (*Surgery, Gynecology and Obstetrics*, January, 1922). These authors write as follows:

Congenital occlusion may occur at any point in the intestinal canal. In 15 per cent. of this series it is multiple.

The condition is relatively rare; it occurs once in about 20,000 infants.

There is no one cause for all of the cases. The various etiological factors may be summarized under the following heads: developmental anomalies; developmental accidents; foetal diseases.

Prognosis is bad.

Treatment should be an entero-anastomosis performed as early as possible. [E. H. R.]

A CLINICAL AND PATHOLOGICAL STUDY OF CONTRACTED BLADDER.

FRONTZ, W. A., in *Journal of Urology*, June, 1921. The essential lesion in the condition variously described as "elusive ulcer," "localized cystitis," "interstitial cystitis," "panmural cystitis," etc., is a submucous fibrosis. In most cases other evidences of inflammatory change are noted in the different layers of a bladder wall, but these differ in no respect from the average case of chronic diffuse cystitis.

The cardinal symptoms of the condition are urinary frequency and pain, referred chiefly to the suprapubic region and resulting from over-distention of the bladder.

The diagnosis is based upon the history, the finding of a diminished bladder capacity, with urine not infrequently sterile, the production of intense suprapubic pain when an attempt is made to introduce fluid beyond its capacity, and cystoscopic findings often comparatively slight and out of all proportion to the clinical picture presented. In cases having sterile urine, cystoscopy may reveal insignificant and trivial

areas of reddening of the mucosa at one or more points; in other cases slight puckering is noted, while in cases having infected urine, superficial ulceration may be present. The occurrence of bleeding at the site of the lesion, following over-distention, is strongly suggestive of the condition, but the production of linear or irregular tears in the mucosa by this procedure is almost pathognomonic of it. The bladder capacity, when the patient is deeply anesthetized, approaches normal, a point of differentiation between the cases in which the lesion is more or less localized and those cases in which practically the entire bladder is involved. In the latter group the bladder is inelastic, and the capacity under anesthesia shows very little increase over that when the patient is awake.

Hydraulic distention of the bladder, local application of various drugs, high frequency, etc., have in our experience been unproductive of permanent results in this group of cases.

When the lesion occupies a portion of the bladder permitting resection, this procedure should be employed. In those cases in which resection is not feasible, deep cauterization should be practiced.

[B. D. W.]

COMBINED TUMORS OF THE KIDNEY.

GRAVES, R. C., AND TEMPLETON, E. R., in *Journal of Urology*, June, 1921. Combined renal tumors are rare. Hitherto only four such cases have been found in the literature. They were presented by Frank B. Berry in the *Journal of Medical Research*, 1919.

This paper presents two cases of combined renal tumors. The first case showed hypernephroma (lower pole) and papillary carcinoma of the renal pelvis (upper pole). The second case showed papilloma of the renal pelvis and papillary cystadenoma of the lower pole.

Total haematuria was given as the initial symptom and chief complaint; in the first case of a year's duration; in the other case, haematuria had begun six weeks before admission. The bleeding was intermittent in both cases. Neither patient reported symptoms of bladder irritability.

The first case noticed the occurrence of dull, lumbar pain preceding his period of haematuria. In neither case did the routine physical examination reveal the presence of a tumor. The urine in Case I contained many white blood cells and a few red blood cells, while in Case II only rare red blood corpuscles were found. Pyelography in one showed a "filling defect"; in the other a hydronephrotic dilatation, the shadow of which was faint and ill-defined. [B. D. W.]

SQUAMOUS CELL CARCINOMA OF THE BLADDER.

HINMAN, FRANK, AND GIBSON, THOMAS E. (*Journal of Urology*, July, 1921). Three personal cases of squamous cell carcinoma of the bladder are reported. Radical resection of the cancer has been performed in all. One patient is living and well three years after operation; another ten months and the third three months.

Squamous cell carcinoma of the bladder is a relatively rare disease, only ninety cases (including the author's own cases) having been reported.

The etiology of these neoplasms has been variously ascribed to (1) an ascending epidermization, (2) an ectodermal embryonal inclusion in the vesical wall, (3) a carcinomatous degeneration of pre-existing leukoplakia, and (4) leukoplakia malignant in character from the beginning. It seems that no single theory will explain the etiology of these neoplasms in every case. Definite proof in support of these theories appears to be the result of malignant degeneration of pre-existing leukoplakia.

Leukoplakia is a rare condition characterized as a keratinization of the mucosa of the urinary tract as a

result, in most cases, apparently, of long-continued severe inflammation or irritation.

Leukoplakia is not a metaplasia, but represents, according to the writer's explanation, the effort on the part of epithelium to exercise its inherent power of adaptation to environment in the form of protective cornification, a characteristic, it would seem, of epithelium in general.

"Heterotopic epidermization," so-called, both benign and malignant in nature, has been reported in practically every region of the body where epithelium occurs.

Squamous cell carcinoma appears to be the most malignant form of vesical carcinoma. It is rapidly infiltrating and characterized by early lymphatic involvement.

There are two types of squamous cell carcinoma of the bladder: the tubular type, or non-cornifying epithelioma, and the lobular type (or cornifying epithelioma). The former is said to be the more common type. The latter is generally a malignant ulcer resembling those seen on cutaneous surfaces.

The difference between the two types of neoplasm is apparently one of degree rather than kind. The true cornifying epithelioma is not necessarily heterotopic, as held by Albarran.

Metastases are uncommon, having been reported in only three cases. The cause of death in most cases is attributed to one or more of the following factors: infection, hydronephrosis, and cachexia.

The greatest age incidence is between forty and fifty. Approximately three-fourths of the cases were males.

Symptoms are not characteristic. The most common prodromal symptom is haematuria.

Treatment has been palliative in many cases, and the reports of the operative treatment are too incomplete to determine with certainty the results. Two three-year cures, one five-year cure, and one eight-and-a-half-year cure have been reported after resection.

This paper also presents portions of some fifty cases by other authors by tables and also short summaries.

[B. D. W.]

THE VALUE OF PREPARATION IN KIDNEY OPERATION.

BUGBEE, H. G. (*Journal of Urology*, July, 1921.) Bugbee is convinced that in cases of traumatic injury to the kidney conservative treatment or deferred operation, in carefully selected cases, will often lead to the saving of a kidney; that many cases of tuberculosis of the kidney, even in the presence of active foci in other parts of the body, will become good surgical risks by a careful period of preparation; that such a preparation diminishes the liability of general tuberculosis; and that secondary lesions in the urinary tract will heal more rapidly following operation. Careful preparation in cases of renal calculi often renders pelvo-lithotomy or nephrotomy possible, thus obviating nephrectomy. Operation has been eliminated in many cases of kidney infection, and often even in the pyonephrosis, by ureteral catheter drainage and cutting off the supply of infection to the kidney. The type of cases known as essential haematuria has been practically eliminated by more careful study and by pelvic lavage. Operative procedures in other kidney conditions, as congenital anomalies, polycystic kidney, tumors, and kidney complications of pregnancy, should be so accurately outlined and the patient so prepared for operation that the mortality in kidney surgery should be exceedingly small. [B. D. W.]

VAGINO-VESICAL AND UTERO-VESICAL FISTULAE.

MACKENZIE, DAVID W. (*Journal of Urology*, July, 1921). MacKenzie emphasizes a few points which he considers of vital importance.

Pre-operative cleansing of parts.

Attacking the condition from a urological point of view.

Definite diagnosis with location of openings in the bladder and the relation to the ureteral orifices.

Lateral perineal incision, especially for fistulae high in the vagina or uterus.

Free separation of the vaginal from the vesical wall.

Multiple layers of suture with invagination of the bladder into that viscous.

Vaginal packing to elevate and support the suture line.

Post-operative judgment and care.

McKenzie presents a dozen cases with drawings from a number of them. It is to be noted that all the cases were operated by the perineal route.

[B. D. W.]

A SUGGESTION FOR THE POST-OPERATIVE CARE OF VESICO-VAGINAL FISTULAE.

CHUTE, ARTHUR L. (*Journal of Urology*, July, 1921.) Chute presents four cases in this paper which healed solidly after one operation, by having the patient lie on her face with a retention catheter in place. This position, though most irksome, prevents any weight of urine or of intestine from exerting pressure on the line of suture. When the edges of the bladder incision are kept at rest in accurate apposition, as in the case when this position and retention catheter are employed, the edges of the incision very soon adhere fairly firmly, as is very well shown in Case 3, in whom six days after operation the catheter became plugged and the bladder was found to be holding eight ounces of urine without any leakage through the line of suture. This plugging of the catheter emphasized the importance of making sure that the retention catheter is kept clear by syringing a little fluid through it, and it is also a wise precaution four to six days after operation to carefully remove the catheter and cleanse it of any accumulation of phosphates that may have taken place.

A NEW ADVANCE IN SILVER THERAPY.

COBB, RALPH B. (*Journal of Urology*, July, 1921.) The writer's results with colloidal silver chloride Hille, known and prescribed as "Lunosol," or "White Silver Hille," compare more favorably than the results obtained by any other of the generally used preparations.

The new silver salt was found to be more efficient, non-toxic, non-irritating and free from any staining qualities.

Additional work with this new product will be carried out and be reported at a later date. [D. B. W.]

PARAFOCAL PHARMACODYNAMIC ALLERGY.

HECHT, from Pirquet's Pediatric Clinic at Vienna, presents in a continued article (*Wien. Klin. Woch.*, Dec. 1, 1921) a study of skin reactions with relation to specific parafoal changes. He finds that in hyperemic regions of the skin the exudation reaction is diminished, constituting a parafoal weakening of the skin reaction. With regard to the Pirquet skin reaction, intracutaneous and cutaneous tuberculin reactions show parafoally changing relations which may be regarded as specific. The depression of the readiness for exudation around an inflammatory infiltration is demonstrable to a distance of 25 mm. which throws light also on the affinity of so-called local ergotropy. [R. M. G.]

LENGTH OF INTESTINES AND SITTING HEIGHT.

JELLERRIGG, from Hamburger's Pediatric Clinic at Graz, presents a study (*Wien. Klin. Woch.*, Dec. 15, 1921) of the relation of intestinal length to sitting

height in children. He finds the average ratio of height to length to be 1:12, with individual variations from 1:8 to 1:16. He therefore concludes that Pirquet is not justified in postulating a constant relation and in determining therefrom the area of the absorbing intestinal surface. [R. M. G.]

SUB-ACUTE BACTERIAL ENDOCARDITIS.

NICHOLL, J. W. McK. (*The Practitioner*, December, 1921) discusses the subject of what he calls sub-acute bacterial endocarditis. The chief symptoms of this condition are fever, pain, breathlessness, and cough. The signs are:

1. Presence of chronic valvular disease of the heart, with signs of failure and changing murmurs.
2. Emboli and their results—
 - (a) Infarcts of abdominal organs.
 - (b) Hæmoptysis.
 - (c) Paralysis.
3. Enlarged liver.
4. Albuminuria.
5. Blood in the faeces.
6. Changes in the skin.
7. Clubbing of fingers.
8. Blood-culture.

His conclusions are as follows:

1. Seventeen cases of subacute bacterial endocarditis among war pensioners were observed clinically over long periods. It is a mortal disease, and of greater frequency than has been hitherto believed.
2. The chief diagnostic features are:
 - (a) The presence of chronic valvular disease, especially aortic incompetence.
 - (b) Pyrexia with apyrexial periods.
 - (c) Splenic enlargement.
 - (d) Recurrent emboli and petechiae.
 - (e) Prostration, clubbing of fingers.

3. It may be diagnosed without a positive blood-culture: eight negative results were obtained and only one positive.

[J. B. H.]

SECONDARY ANEMIA OF INFANTS. A STUDY OF SO-CALLED INFANTILE SPLENIC ANEMIA OR ANEMIA INFANTUM PSEUDOLEUKEMICA.

EVANS AND HAPP (*Johns Hopkins Hospital Bulletin*, January, 1922) discuss the so-called infantile splenic anemia with the details and blood findings of numerous cases. Their conclusions are as follows:

1. In infants with anemia, enlargement of the spleen is frequent, and enlargement of the liver and lymph nodes is fairly common. These findings alone are of no specific diagnostic or prognostic importance.
2. The infantile hematopoietic system frequently reacts to anemia with a relative lymphocytosis, by throwing out immature blood cells, or with both of these qualitative changes in varying grades of severity. Any of these reactions may be present with or without a leucocytosis, and may have no serious significance.
3. The presence, absence, or degree of splenomegaly, hepatomegaly, or general enlargement of the lymph nodes, the severity of the anemia, the total white blood cell count, or the type of qualitative changes in the blood, bear no constant relation to each other.

4. This symptom-complex has not been shown to be a disease *sui generis* and all variations of it are probably merely an infantile response to some agent producing secondary anemia. It is not yet entitled to any special name, especially one that suggests a relationship to leukemia.

[J. B. H.]

THE BACTERICIDAL ACTION OF GASTRIC JUICE ON *B. TUBERCULOSIS*.

INKSTER AND GLOYNE (*British Medical Journal*, December 17, 1921) briefly describe the effect of gastric juice on the tubercle bacillus and reach the following conclusions:

1. Gastric juice removed from the stomachs of persons free from gastro-intestinal disease, at various intervals of time after an oatmeal test meal, showed very little power of destroying (a) tubercle bacilli in sputum which had been exposed to it for ninety minutes, and (b) tubercle bacilli in mouth washes which had been exposed to it for ninety and one hundred and eighty minutes respectively. In one case a total acidity of 62, in another of 54.1, and in a third of 24, failed to destroy the bacillus.

2. The gastric secretion may possibly have destroyed the tubercle bacilli in a very weak emulsion to which it was exposed under similar conditions, but the number of bacilli used (100) was so small that it cannot be considered a fair test, and even the control test with this weak emulsion proved negative in a guinea-pig.

3. The protection against the tubercle bacillus afforded by the gastric secretion is apparently by no means perfect. But it must be remembered that the dilution of contents and the motor activity of the stomach probably play a large part in this mechanism of protection, and these latter factors cannot be satisfactorily experimented upon *in vitro*.

These results are in general agreement with the conclusions arrived at by Allan Macfadyen under different conditions and with bacteria other than *B. tuberculosis* as long ago as 1887.

4. In the four cases examined the untreated gastric juice contained no tubercle bacilli as judged by the inoculation test. We know of no records which show whether or no tubercle bacilli have been found in gastric juice in persons not suffering from clinical tuberculosis. This point may have important bearing on the portals of entry of the bacillus.

[J. B. H.]

CONGENITAL HYPERTROPHIC PYLORIC STENOSIS.

GRAY AND REYNOLDS (*British Medical Journal*, November 26, 1921) present an analysis of 50 operations for congenital hypertrophic pyloric stenosis. Their conclusions are as follows:

1. Accumulating evidence supports Pirie's hypothesis, that hyperadrenalism causes pyloric hypertrophy, which is to be regarded as one of its manifestations.

2. Pancreatic and biliary insufficiency, also resulting from hyperadrenalism, accentuate the pyloric closure and influence the mortality.

3. The sex preponderance is of similar importance.

4. Gas and oxygen anesthesia will nearly eliminate operative fatalities, both immediate and delayed.

5. Operation should never be undertaken as an emergency.

6. Systematic preparation for operation by lavage and infusion is essential. Even moribund cases can be so rendered operable, and make a good recovery.

7. Such preparation should never exceed four days at the outside.

8. Now that the operation mortality has been so greatly reduced by the employment of gas and oxygen, operation is indicated as soon after the diagnosis as the necessary preparatory treatment will permit.

9. The possible risk of performing an avoidable operation is negligible when compared with the prejudicial results of ineffectual prolonged medical treatment.

10. The most careful medical after-treatment is essential.

[J. B. H.]

Book Reviews.

The Clinical Study of the Early Symptoms and Treatment of Circulatory Disease in General Practice. By R. M. WILSON, M.B., CH.B., late Assistant to Sir James Mackenzie; late Cardiologist War Office, Trench Fever Committee; Consulting Physician, Ministry of Pensions. With a Foreword by Sir James Mackenzie. Cloth, illustrated, pp. 245. London: Henry Frowde and Hodder & Stoughton. 1921.

This book presents a study of exhaustion, the pulse rate, extra-systoles, tremor, breathlessness, cyanosis, hyperalgesia, cardiac pain, headache, blood-pressure, the early symptoms of heart failure, etc. The text is freely illustrated by diagrams, many of which are pulse tracings.

In practically all of the above conditions Wilson discerns the working of the vagal and the sympathetic nervous systems, and his book appears to be an exposition of their reciprocal actions. First of all there is the action of a stimulus on one of these systems with its response, and this is followed by a reaction on the part of the other system. Normally there is a high degree of balance between the vagus and the sympathetic; disturbance of this reflex mechanism is believed to be a cause of many of the early symptoms which Wilson has so carefully studied.

The reviewer is instinctively cautious in accepting a theory when it seems to be offered as well-nigh universally applicable by its advocate. And yet as one reads and thinks of the matter the feeling comes that there is a large element of truth in Wilson's theory. The field is too big and the problems too intricate to be settled by one observer, and realizing this, the author hopes to stimulate other workers. Wilson's recorded facts will be useful whether his theories stand or fall.

Much of the discussion concerns the problem of effort syndrome or irritable heart, and all who are particularly concerned with this condition would do well to examine the book. The latter obviously cannot be recommended to the general practitioner as one containing a clear presentation of established facts which may be of service in his daily work, but it may be described as more in the nature of philosophical reading which will stimulate one to think and may assist him who desires to study his cases with the view of increasing the sum of medical knowledge.

The Management of Men. By EDWARD L. MUNSON. Pp. 801. New York: Henry Holt & Co. 1921.

One of the most difficult and complex of human problems, in the military, industrial, social and political fields, is the management of men, and any contribution to this subject, even though it be more or less schematic because of the multiple variations of human character, is a welcome one. Dr. Munson has provided such a volume, and although it is more strictly limited to military problems, yet the extensive data provided can be applied to the conduct of human behavior in the various fields of civil life.

Briefly, the volume deals with the organization and development of morale work in the army to increase efficiency during the war; more broadly, the army material was used as a laboratory for the elucidation and practical application of certain psychological principles in order to increase human efficiency. The book is well written, the subjects discussed in a perfectly scientific manner, while the diversity of material makes the volume unusually complete.

By "morale" the author means a state of mind with reference to confidence, courage and zeal, especially of a number of persons associated in some enterprise. This definition, however, does not fully describe collective morale in what may be defined in Trotter's term, the "herd instinct," which, from the behavioristic standpoint, is really the collective unconscious of society. Morale has many intangible aspects which cannot be reduced to a concrete definition, although for practical purposes it can be felt, described, stimulated, and guided. He points out, however,—and in this we can fully agree with him,—that no administrative method, either military or civil, can be successful which does not take the mental attitude of the human subject into account, that is, the human motives must be understood before social reactions can be guided. These factors of human behavior are, therefore, problems not only of military psychology, of which the mobilization in the Great War furnished a unique opportunity for study, but likewise of the psychology of every-day life which involves vaster numbers of human beings and social contacts and relationships than can be found in the army. Therefore any principles elucidated in what may be called military psychology ought, with certain modifications, to be of value in economic, social, industrial and political problems in times of peace.

The antithesis of morale, what may be called its pathological manifestations, is known by the word "demoralize." Morale is a state of faith quickened or activated by the personality of certain leaders, and therefore numbers of men alone, without adequate morale, can never

insure victory or carry a reform to a successful issue, either in war or peace. In most cases an army loses, a strike disintegrates, a reform movement dissolves, a revolution fails, not because it is physically crushed, but because it is psychologically beaten.

It seems from reading this volume, that positive morale is identical with "transference" of the psychoanalysts, and negative morale, or demoralization, corresponds to the "resistances" of the psychoanalysts. Both are more unconscious mechanisms than conscious rationalizations, and both, when applied to groups, are really that collective unconscious which is termed the herd instinct.

The chief criticism of the book is that there is too much insistence on artificial classification and not enough on the dynamics of human behavior in its unconscious aspects and contacts, and in its motivation from unconscious sources. But considering the complexity of the problem and the difficulties of individualistic psychology, the author has done a very creditable piece of work, although the volume would have been improved if more insistence were placed, not only on the unconscious motives, but also on the more general integrations of human behavior as demonstrated by recent psychological research.

The Blood Supply to the Heart, in Its Anatomical and Clinical Aspects. By LOUIS GROSS. 171 pages: 29 full-page plates and six text-illustrations. New York: Paul B. Hoeber. 1921.

One of the most instructive and stimulating books published in recent years concerning the heart, is this work by Gross, on the blood supply of the heart. It contains excellent illustrations of x-rays of injected specimens and also photographs of injected hearts dehydrated and cleared in oil. There is appended a complete bibliography of 186 authors and 253 papers.

For the anatomist and clinician alike, there is much worth reading in the book. After a discussion of his technique, Gross describes in detail the blood supply of the auricles and ventricles of the average normal heart. A few quotations will serve to bring out points of particular interest: "There can be no sharp line of demarcation between the supply of right and left coronary arteries, since, not only do their branches overlap, but also, as will later be shown, profuse and abundant anastomoses leave a wide border-line which is supplied by both vessels." . . . "The auricular distribution of blood-vessels is so prone to variations that an attempt at giving a typical description becomes artificial and practically worthless . . . " . . . "The right coronary artery in

the typical average heart supplies the entire right ventricle, with the exception of the left third of the anterior wall. Besides this, its *rami ventriculares sinistri* supply the right half of the posterior wall of the left ventricle and a small (posterior) strip of the interventricular septum." The left coronary artery . . . "supplies the whole remaining part of the left ventricle, the small left anterior portion of the right ventricle not supplied by the right coronary artery and a small anterior strip of the interventricular septum."

The author, in discussing the blood supply of the neuro-muscular tissue, that is, of the sinoauricular and atrioventricular nodes and of the a-v bundle and its branches, states that usually a definite artery supplies each node, the sinoauricular artery (the *ramus ostii cavae superioris*) arising from the right coronary artery in 60 per cent. of the cases, while the *ramus septi fibrosi*, which supplies the atrioventricular node, arises from the right coronary artery in 92 per cent. of the cases. The right branch of the a-v bundle invariably receives its blood supply from the left coronary artery by a stout vessel called the *ramus limbi dextri*, while the left branch of the bundle has no specific blood supply of its own, profuse anastomoses of septal branches from both sides supplying it. (This distribution probably accounts for the far greater frequency of right bundle branch block than left branch block in the clinic.) Gross states that "the ultimate arborizations (of the A-V conduction system) are supplied from the rich sub-endocardial vessels." He says that in spite of extensive infarction of the heart, "the very rich and profuse sub-endocardial anastomoses generally supply sufficient nourishment to the superimposed Purkinje fibers to keep them intact." (This is a point of especial interest since it supports the view that partial bundle branch block is far more likely than the so-called arborization block in the reproduction of electrocardiograms indicating partial intraventricular block.)

A special chapter is devoted to the blood supply to the valves of the heart. Deductions from the study of this supply applied to valvular inflammation are of much interest. The incidence of valvular endocarditis, probably resulting from an embolizing bacteriemia, seems to bear a close relation to the frequency with which blood-vessels are found in the valves. In support of this theory are the following facts: "Fetal valves contain musculature on right and left sides, the right probably being richer in blood-vessels. Fetal valvular endocarditis is found more frequently on the right side. Regression of musculature and blood-vessels occurs as age advances, but infants' valves still frequently contain both. Infants are fre-

quently attacked by valvular endocarditis. In adults, valvular endocarditis is not as frequent as in children, but occurs with preference on the aortic cusp of the mitral valve. The aortic cusp of the mitral valve is the last to show regression of musculature and the most frequently injected leaf."

In the sixth chapter there is a very important discussion of the anastomoses between the coronary arteries. Back in 1708, Thebesius had said that they existed, as the result of observations he had made during his dissections. In 1855, Hyrtl, and in 1866, Henle, claimed that the coronary arteries were "end arteries." The error of these men and the correctness of Thebesius' observations have of late been proven, and Gross makes the proof very clear. He has come to "the general conclusion that the heart is, perhaps, the richest organ in the body as regards capillary and precapillary anastomoses, between branches of the same coronary artery as well as between branches from both coronaries." He states, however, that "Amenomiya concluded from his study of infarcts occurring in papillary muscles that for an infarct to occur it is necessary to have: (a) too little anastomoses; (b) closure of relatively large vessels, and (c) rapid blockage of the vessel."

In the seventh chapter, Gross describes the veins of the heart, taking up in detail the Thebesian veins, and finally, in the eighth (last) chapter, he discusses the age period changes in the blood supply of the heart. He shows that with age anastomoses increase, particularly as the result of the deposition of fat with rich blood supply. This seems to be something of a compensatory mechanism to assure the myocardium of sufficient blood supply when some of the vessels begin to be narrowed and blocked by sclerotic processes. He cites the case of a woman of 73 years of age, who died of cancer of the gall-bladder. She had never had any cardiac symptoms or signs. At post-mortem examination, she showed almost complete obliteration of the right coronary artery with *absolutely intact myocardium* (italics mine).

To anyone interested in the heart, this book can be warmly recommended. In fact, it should be read by every anatomist and internist.

The Stomach and the Abdomen, from the Physician's Standpoint. By WILLIAM RUSSELL, M.D., LL.D., Ex-President Royal College of Physicians, Edinburgh; Professor-Emeritus of Clinical Medicine, Edinburgh University; Consulting Physician, Royal Infirmary, Edinburgh; Author of "Arterial Sclerosis, Hy-

pertonus, and Blood Pressure," and "The Sphygmometer: Its Value in Practical Medicine." New York: William Wood and Company. 1921.

In submitting this work to the medical profession some words of explanation seem to be necessary. The book is offered as a contribution towards the elucidation of the disorders and diseases of the stomach and other abdominal viscera, as these have to be dealt with by the family practitioner, and by the hospital and consulting physician.

The writer was interested in these matters before the advent of abdominal surgery, but the opening of that epoch gave a motive and an impetus to abdominal diagnosis which had previously been lacking. That diagnosis could be tested on the operating table, instead of the post-mortem room table only, gave a significance to abdominal diagnosis which had been largely wanting.

As a teacher in a great medical school, and as a physician to a great general hospital, where every type of disorder and disease was admitted into the wards, it was a duty and a privilege, not only to treat sick people, but to expound to students the methods and the steps by which diagnosis was reached, and on which treatment was based. The advent of abdominal surgery opened up a new field for investigation, and for teaching internal diagnosis, of which the writer took as full advantage as circumstances allowed.

As time passed, and experience was tested and retested, the problems became simpler and the points essential to correct diagnosis clearer. This led to simplification in teaching, and this book represents more or less fully the position reached. There is little in it which has not been taught and re-taught by the writer as abdominal cases were admitted to his wards. Bits of clinical lectures and bits of clinics, which were written from time to time as new light arose, have been incorporated, and hence a certain amount of repetition has been inevitable.

The records of cases by which the text is illustrated have been deliberately restricted in number. Those which have been used are sometimes of recent date, at other times of earlier date; they are used to illustrate the points which determined diagnosis—a diagnosis which in many of the cases was checked in the operating room.

It is the hope of the writer that the book may be found helpful in simplifying the problems of abdominal diagnosis.

Contents.

Sec. I—The Stomach.

Sec. II—The Pylorus and Duodenum.

Sec. III—The Intestinal Tract.

Sec. IV—The Oesophagus.

Sec. V—The Liver.

Sec. VI—The Spleen.

Sec. VII—The Kidney.

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A really admirable book,—short, concise, clear, systematic; in agreement with best modern thought and practice. Not extreme in either direction. An almost ideal textbook for students and busy practitioners, though the reviewer does not necessarily agree in every particular detail with the method of diagnosis, and the treatment outlined. Would we had many such volumes, and from American medical men!

Bowel Diseases in the Tropics. By SIR LEONARD ROGERS, M.D., F.R.C.P., F.R.C.S., I.M.S. (retired). London: Henry Frowde and Hodder & Stoughton. 1921.

This volume, published in London in 1921, is based on earlier works by the same author on cholera and dysentery, plus accumulated experience and information about advances in the subjects dealt with. There are chapters on cholera, on several forms of dysentery, and on hill diarrhoea and sprue.

The information is concisely presented, well arranged, and up to date.

The book should prove valuable to students of tropical medicine and to practitioners as well.

The 46th Annual Report of the Lawrence General Hospital.

The 46th Annual Report of the Lawrence General Hospital for the year ending August 31, 1921, must give satisfaction to those interested in the Hospital. During the year it was placed on the first accredited list of hospitals approved by the American College of Surgery. During the year, 2,552 patients were cared for. There were 166 deaths; of these, 55 were moribund when admitted.

GERMAN ATTITUDE TOWARD AMERICAN LITERATURE.

SCIENTIFIC research in the United States has made such notable advances in recent years that the Editor of the *Munchener Medizinische Wochenschrift* has advanced the argument that English should be made compulsory in the curricula of the German schools; also because American literature is taking the lead in medicine, a knowledge of English is becoming indispensable for the research worker.

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SHALL NURSES BE PROSECUTED FOR PRACTISING MEDICINE?

CONSIDERABLE interest has been aroused concerning the problem presented by nurses who have been treating injuries without having secured attendance by physicians. This matter has been frequently referred to by physicians who have felt that nurses have assumed responsibilities not warranted under our laws, and in some instances doctors have felt that the activities of nurses have in a very definite way invaded the field of medical practice, although the nurses have been sufficiently warned. Since the alleged practice of medicine by nurses has seemed to be on the increase, there has been no reason why the authorities should decline to act. The Board of Registration in Medicine has tried to bring about compliance with the law without resorting to drastic measures, but reports of questionable methods have become so common and demands for action have been so insistent that it became necessary to report the facts in two recent cases to the prosecuting authorities.

Previous to the cases referred to, complaints were dealt with diplomatically, for it seemed probable that in most instances there had been no defiance of law and no harm had been done beyond displacing the doctor, and because the patient suffered no injury, nurses and patients have felt that no serious question was involved.

But laws are enacted to be obeyed and until repealed should be upheld by all loyal citizens. Very few would agree that a bank official, who made an investment contrary to law, even though no financial loss resulted, should not be reprimanded by the bank examiner, and if the irregularity was continued most people would uphold the authorities who felt obliged to take action which would prevent repetition. Preventive measures should be employed before definite injury is done.

The whole question is complicated and delicate, but it can be solved by the nurses themselves, even though managers of industrial plants and some physicians try to induce nurses to practise medicine, either as a convenience or to save expense.

The general purpose of the laws governing medical practice is to protect the patient from incompetent service, and nurses should observe the requirements because it is a law and also because sooner or later some nurse may attempt to render a service which is beyond her ability.

TWO VETO MESSAGES.

THE question of taxation of States by the Federal Government for the purpose of furnishing aid to the States, is not new, and precedent for adverse action is found in the veto message of James Madison in 1817, and that of Grover Cleveland in 1887.

When the bill entitled:

"An act to set apart and pledge certain funds for internal improvements," and which sets apart and pledges funds "for constructing roads and canals, and improving the navigation of watercourses, in order to facilitate, promote, and give security to internal commerce among the several States, and to render more easy and less expensive the means and provisions for the common defense," came before Madison, he said in the document which recorded his disapproval of the bill:

"The legislative powers tested in Congress are specified and enumerated in the eighth section of the first article of the Constitution, and it does not appear that the power proposed to be exercised by the bill is among the enumerated powers, or that it falls by any just interpretation within the power to make laws necessary and proper for carrying into execution those or other powers vested by the Constitution in the Government of the United States."

When the bill under the title of: "An act to enable the Commissioner of Agriculture to make a special distribution of seeds in the drought-stricken counties of Texas, and making an appropriation therefor," came before

Cleveland, among his objections he wrote the following:

"I can find no warrant for such an appropriation in the Constitution; and I do not believe that the power and duty of the General Government ought to be extended to the relief of individual suffering which is in no manner properly related to the public service or benefit. A prevalent tendency to disregard the limited mission of this power and duty should, I think, be steadfastly resisted, to the end that the lesson should be constantly enforced that though the people support the Government, the Government should not support the people."

Although laws have been enacted about which there have been questions of constitutionality, the interpretation of the Supreme Court has not always been sought, and such laws have been enforced because no appeal has been taken.

Our legislature has taken the commendable course in asking for the opinion of the Attorney-General relating to the Sheppard-Towner bill, which opinion would be valuable although not authoritative.

THE REASON FOR THE ENACTMENT OF SOME LAWS.

DURING the time devoted to the consideration of the Sheppard-Towner bill, Mr. Thomas U. Sisson, Congressman, made the following remarks on the floor of the House:

"Mr. Chairman and Gentlemen of the Committee, most Members of Congress are physically courageous men. They are not physical cowards. If you were to say to the average Member of Congress that he is a liar or that he is a thief, he would strike you. I wish to God that all of the Members were as courageous politically as they are physically. Then the people would have more respect for this magnificent body of men. Men who would not hesitate for one moment to charge a booming battery will run like a Molly Cottontail from a political issue. Mr. Chairman, I have had my political grave dug for me many times since I have been in Congress on account of certain votes that I have cast. Some one interested in some measure will tell you if you do not vote for it you will be defeated. But I tell you that if a man who casts an honest, conscientious vote and feels away down in his heart that he is right, goes back and looks the people of his district squarely in the eye and says to them that he could not vote otherwise without stultifying his manhood and his intellectual integrity, he will always receive a favorable response from the people, because the American people love a brave, honest man. (Applause.) I expect this bill to pass by a large majority

because the vote will be recorded. If the vote could be by secret ballot and Members voted their real sentiments there would not be as many votes for this bill as there will be against it. I doubt if there will be fifty of us who will vote against the bill as it is; but if the vote could be in secret there would not be fifty votes for it."

It would not be polite, or even proper, for citizens outside of Congress to make charges of this character. Mr. Sisson is on the inside and may be regarded as one familiar with the psychology of a congressman's reaction to outside pressure. One member of Congress, formerly in the Massachusetts State Legislature, severely criticized his colleagues in a public address.

We sometimes wonder why our State Legislature does not follow the advice of physicians on matters concerning which our ablest men are agreed. We hope that the explanation is not to be found in the political cowardice of our senators and representatives. It is more probable that even when the conditions indicate that the best interests of the people would be served by the enactment of certain measures the legislator justifies his adverse vote on the assumption that the majority of the people do not want the proposed legislation. In other words, legislators are apt to feel that they must reflect the wishes of the people rather than assume leadership. Now that physicians are showing more interest in legislative matters, there is less excuse for ignorance relating to measures which are for the benefit of the people.

THE CONTROVERSY IN MICHIGAN.

THE bitter attacks on Dr. Hugh Cabot and the policies of the University of Michigan have led to conferences between officers of the Michigan State Medical Society and a committee of the University. It is reported that a common understanding has been reached. In a statement relating to the controversy it appears that the University and Dr. Cabot are opposed to state medicine and to "those policies or movements that have for their object the establishment of any such forms for the practice of medicine."

An unprejudiced study of the vigorous expressions of opinions set forth by writers in the Middle West seems to warrant the conclusion that the attack appeared to demonstrate the suspicious and apprehensive state of mind of those who feel that there is imminent danger of the blighting influence of state medicine. It may be well for the profession to be alert, and critical of all legislative and public health measures, but that any large number of prominent men in the profession are joined with any group of people who would destroy estab-

lished medical ideals or enslave the profession is beyond question.

Dr. Cabot has previously stated that he was opposed to state medicine, so called. We need to keep clearly in mind that the term "state medicine" is interpreted very differently by those who use this term. So far as it applies to preventive medicine and the dissemination of information relating to the cure and control of diseases, the State has a useful function and would be supported by most physicians. But if there is any suggestion of invading the relation of the reputable practitioner with his patients and assuming the clinical care of the sick who are not indigent, the profession would oppose such function to the bitter end.

If there was any purpose in the plan of the Michigan University to embark on an advertising propaganda designed to draw patients away from the family doctor, it has apparently been abandoned in the interest of harmony. It is much more likely that language employed did not clearly set forth the purpose of the hospital and medical school and that a wrong impression was created.

The medical profession is to be congratulated on the signing of an armistice which will probably be a treaty of peace.

PELLAGRA.

In the *United States Public Health Reports* for March 3, 1922, appears an article by Joseph Goldberger, Surgeon, and W. F. Tanner, Assistant Surgeon, United States Public Health Service, which gives the opinions of investigation relating to the etiology and treatment of pellagra. The conclusions are as follows:

Diet is the primary controlling factor in the causation and prevention of this disease;

The disease is not transmissible;

Active cases respond promptly to exclusive dietary treatment except in rare instances;

Change of environment is not necessary;

The disease can be prevented by means of a suitable diet without intervention of any other known factor, hygienic or sanitary.

In addition to defective diet there is probably an essential infective factor. Probably the defective diet operates merely by lowering resistance to infection. This explanation, however, is hypothetical because evidence of the existence of an essential infective agent has not yet been exhibited. Also, it is not yet known exactly the essential dietary factors.

Investigators seem to believe that the deficient dietary constituents may be the relative proportions of some of the following named substances: protein, mineral element, anti-neuritic, and possibly, fat-soluble vitamins. From this the possibly essential factors are an

amino-acid deficiency, a deficient or faulty constitution of the mineral element, a deficiency of the fat-soluble vitamins and, perhaps, some unknown factor. At the present time, none of the known vitamins are regarded as the one essential factor.

The following summary is a clear exposition of the problems as studied up to the present time:

The more important part of the evidence proving diet to be the primary controlling factor in the prevention and causation of pellagra is briefly summarized.

Cases of pellagra are reported that were observed to occur in individuals who were known to have consumed daily, during period of not less than two and one-half months immediately before the onset of the distinctive eruption, what is judged to have been a liberal supply of mineral elements and the known vitamins, which would indicate that a deficiency of these dietary factors is not essential in the causation of the disease.

These factors having thus been excluded, the dominating rôle of diet in the prevention and causation of pellagra must be referred primarily to the character of the protein (amino-acid) supply, this being the only other dietary factor at present known to be necessary to physiological well-being.

On the assumption that all the dietary factors essential in human nutrition are known, it may be concluded that the essential etiological dietary factor is a specific defect in the amino-acid supply, probably in the nature of a deficiency of some special combination or combinations of amino-acids.

There is reason to believe that besides the specific amino-acid defect, pellagra-producing diets may and probably frequently have other more or less serious faults, including non-specific amino-acid deficiencies which may operate as accessory etiological factors.

In some preliminary therapeutic trials with amino-acids the dermal lesions in each of two cases seemed to show a markedly favorable reaction to cystine; and in a third case a steady gain in weight, with some improvement in diarrhea, accompanied the administration of both cystine and tryptophane.

A CRITICISM OF PHYSICIANS BY A PHYSICIAN.

THE profession has become accustomed to adverse comment and even bitter criticism by the laity. The opposition sometimes exhibited towards the practice of medicine by the ignorant arouses pity in the minds of physicians, but when a doctor occupying a commanding position makes a public assertion that "The medical profession quietly allows millions of

people to continue in ignorance of great strides in medical practice, which would quickly cure many who are now letting themselves die through fear of doctors and hospitals," and in another part of the report of the interview he is quoted as saying that "The attitude of the medical profession, in failing to teach the public anything about the great advances of medicine and in discouraging public discussions of it, often has the result of causing the ignorant to get their medical knowledge from quacks. A campaign of publicity to give the public the right attitude towards medicine would wipe out disease completely,"*—he is open to censure. These statements, which have been given publicity in the press, are credited to Dr. Copeland, Commissioner of Health for New York City.

If Dr. Copeland believes his own statements, he is not informed concerning the efforts which are made in Boston to enlighten the public by means of public lectures on medical subjects and the dissemination of literature among the laity relating to cancer, tuberculosis, diphtheria and other important diseases.

It is possible that the reporter did not give Dr. Copeland's views correctly, for the most visionary enthusiast would hesitate to say that all the information in the world at the present time would, even if understood and applied, wipe out disease completely.

POST-OPERATIVE PULMONARY COMPLICATIONS.

IN an analysis of 7,900 operations, Dr. Alma Vedin, anaesthetist to the New York Hospital, states that there were 120 post-operative complications in this series, or 1.51 per cent. The complications consisted of lobar and broncho-pneumonia, acute bronchitis, pleurisy (acute fibrinous, sero-fibrinous and suppurative), and embolism of the pulmonary artery, the exact figures being 63 lobar pneumonia, 20 bronchial, 14 acute bronchitis, 11 pleurisy and 12 of embolism of the pulmonary artery. There were 29 deaths; of the 12 cases of embolism 10 died. An analysis of these complications following abdominal operations shows that there is a larger percentage following upper abdominal as compared with those in the lower abdominal regions. The greater number of complications appeared within two days following operation.

The recommendations for careful examinations before and intelligent care after operations are pertinent. The paper appears in *Current Research in Anaesthesia and Analgesia* for March, 1922, published by the National

Anaesthesia Research Society. Surgeons and anaesthetists should read this paper.

THE RESTRAINT OF A TYPHOID CARRIER.

"TYPHOID MARY," in her time, served a useful purpose in demonstrating the danger of the carrier. The control of the carrier has been an important problem. The Chicago Department of Health has had to deal with a Mrs. Barmore, who was found to have been responsible for a number of cases. This woman had been conducting a boarding house and furnished the boarders with contaminated food. She was placed under quarantine by the authority of the State Department of Health. Since she was thus deprived of the means of securing a livelihood, she brought suit, under *habeas corpus* proceedings, for the purpose of obtaining her liberty. Her appeal was heard by the lower and, afterward, the Supreme Court of the State, and the action of the Department of Health upheld. She is now living under rules and regulations imposed by the Department of Health.

PREMEDICATED ALCOHOL.

AMONG the complicated requirements which are in force another plan is being considered in Washington which, if adopted, will permit the use of a form of denatured alcohol under the term "Premedicated," for use in remedies intended for internal administration. This plan appears to be advocated by the manufacturers of proprietary preparations. The method to be employed consists of having one or more ingredients of the proposed preparation added to the alcohol, and the manufacturer can then procure the alcohol free of tax.

This is ingenious but involves putting a heavy burden on manufacturers of regular pharmaceutical products, but is of very little inconvenience to the proprietary medicine concerns. For example, the makers of Lydia Pinkham's Compound would send on some of the drug contents of the so-called medicine and, after being incorporated in the alcohol, they would get the alcohol tax free. A pharmacist would have to send on the medicinal ingredient of his various tinctures and other alcoholic preparations. Some preparations require pure alcohol and some diluted alcohol, according to the solubility of the extractive matter in the drug, so that a pharmacist who makes his own tinctures, elixirs and fluid extracts would have to have as many varieties of medicated alcohol as he may need in his laboratory.

*Special dispatch to Boston Herald, February 11, 1922.

Dr. Fullerton Cook, Chairman of the Revision Committee of the Pharmacopeia, has declared that a plan of this kind would endanger our official standards, and the scientific control of certain drugs would be lost, because the mixture would be made by distillers' employees and not by those who are trained to handle pharmaceutical preparations.

The price to the doctor and patient of these preparations would be increased. It is estimated that the Government would lose about \$20,000,000 of revenue and the patent medicine manufacturers would be the ones to derive the greater benefit.

Here is an opportunity for the physicians to use influence. The A. M. A. ought to be actively at work.

NEWS ITEMS.

DEATH RATE IN BOSTON.—During the week ending March 25, 1922, the number of deaths reported was 267 against 211 last year, with a rate of 18.23. There were 43 deaths under one year of age against 39 last year.

The number of cases of principal reportable diseases were: Diphtheria, 78; scarlet fever, 57; measles, 140; whooping-cough, 21; tuberculosis, 34.

Included in the above were the following cases of non-residents: Diphtheria, 10; scarlet fever, 8; whooping-cough, 1; tuberculosis, 8.

Total deaths from these diseases were: Diphtheria, 1; scarlet fever, 1; whooping-cough, 1; tuberculosis, 15.

Included in the above were the following cases of non-residents: Tuberculosis, 3.

MASSACHUSETTS GENERAL HOSPITAL.—A clinical meeting of the out-patient staff was held in the Lower Out-Patient Amphitheatre on Wednesday, March 29. Program: "Local Anaesthesia," Dr. A. W. Allen; "Gummatous Cervical Adenitis," Dr. W. P. Coues; "Anaesthesia in the Reduction of Fractures," Dr. G. A. Leland; "Report on the Sterility Clinic," Dr. A. W. Reggio; "Cases of Tendon Surgery," Dr. T. W. Harmer.

FRANKLIN DISTRICT MEDICAL SOCIETY.—The regular bi-monthly meeting was held on Tuesday, March 21st, in the roomy, well-ventilated sun-parlor of the Weldon Hotel. This was a very agreeable meeting place and undoubtedly the background of growing plants and transparent walls was refreshing and conducive to the alertness of those privileged to attend. Eighteen men, or about 50 per cent. of our membership, were in attendance. Dr. A. E. Johnson read a comprehensive

paper by A. I. Ringer, M.D., of New York, "Chronic Nephritis from the Viewpoint of the General Practitioner." Few of our profession have the writing facility of men like Woods Hutchinson or Richard C. Cabot. Emphasis has been made at our meetings of the value of reviewing and culling from the literature of other men as a substitute for working up a paper in the ordinary way. Dr. Johnson found something that was very acceptable. Dr. H. G. Stetson gave a case report of "Myelogenous Leukaemia," and Dr. W. A. Hutton told something of its previous history and findings. Dr. A. H. Ellis discussed an atypical case of "Typhoid Fever." A few weeks ago there appeared an editorial in the *Greenfield Gazette and Courier* reflecting somewhat upon the attitude of regular practitioners toward chiropractic and other cults. Dr. B. P. Croft made an answer to this in the March 11th issue of that paper, and letters from Dr. Bartol, President of the Massachusetts Medical Society; from Dr. Channing Frothingham, Chairman of special committee to study these cults, and from Dr. G. H. Ellison, of Spencer, a man of active public spirit, commending Dr. Croft's letter, were read. An animated discussion followed as to the policies which should be pursued by the profession toward these cults, in which Drs. Howe, Upton, Croft, Goldsbury, Sutor, F. W. Johnson, Marble and Stetson took part. Meeting adjourned.

P. W. GOLDSBURY, M.D., *Reporter*.

STAFF MEETING OF THE WORCESTER STATE HOSPITAL.—On March 16th, at the Worcester State Hospital, Dr. Harry Solomon spoke at the bi-monthly staff luncheon. New work on cerebrospinal pressure was explained in an interesting manner by Dr. Solomon and following the discourse a general discussion took place.

Drs. George E. de Schweinitz, Philadelphia; Charles W. Richardson, Washington, D. C., and Fred B. Lund, Boston, have been appointed as the Committee on the Gorgas Memorial of the American Medical Association by President Hubert Work. This appointment was made in compliance with the request from the Gorgas Memorial Institute of Tropical and Preventive Medicine of Panama for the coöperation of the American Medical Association.—*The Nation's Health*.

THE State Department of Public Health is sending letters to pregnant women for the purpose of furnishing information and thereby coöperating with the attending physician. Post-natal letters are also sent every month until the child reaches the age of one year. These letters are given to physicians and others interested, also.

NEW ENGLAND SOCIETY OF PSYCHIATRY.—Ninety members of the New England Society of Psychiatry were entertained by Dr. William A. Bryan, Superintendent, at the Worcester State Hospital, Thursday, March 23, 1922. Many availed themselves of the invitation to visit various parts of the hospital before luncheon. The meeting was called to order by the President, Dr. Walter E. Fernald, and the following papers were read: "If Psychiatrists are to Study the Problems of Delinquency," Dr. William Healy, Boston; "The Application of Cistern Puncture in Psychiatric Practice," Dr. Arthur H. Ruggles, Providence, R. I. At the conclusion of the meeting a vote of thanks was extended to Dr. Bryan and the trustees for their hospitality.

WASHED AIR.—The New York State Commission on Ventilation has been experimenting with washed and recirculated air in two New York City school rooms, with the result of securing two per cent. greater progress in mental and physical efficiency of the pupils.

IMPORTANT MEETINGS.—The meetings in Washington, to be held the first week in May, are of great importance. A program of the scientific feature of the sessions of the American Climatological and Clinical Association is published in this issue. Practitioners who may be able to attend will be instructed and entertained by the papers and discussions presented by eminent physicians.

REGISTRATION OF NURSES.—The result of the last examination of applicants for State Registration is as follows: Number examined, 253; number registered, 201; number rejected, 52. Ten applicants were awarded the special distinction of securing registration "with honor."

DURING March, the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion in *New and Nonofficial Remedies*:

The Intra Products Co.: Sterile Suspension Mercury Salicylate in Cacao Butter. Sterile Suspension Mercury Salicylate in Olive Oil.

Meadows Oil and Chemical Corp.: Ammonium Ichthyolate—Meadows.

LEGISLATIVE MATTERS.—House 601.—Bill relative to physical examination of pupils in the public schools. Adverse report accepted in concurrence by Senate. *Final.*

IMPORTANT NOTICE.

Announcement of meetings to be held on and after next Thursday should reach the desk of the Editor of the JOURNAL not later than next Saturday before noon. The printers do not work Saturday afternoon and the material is locked up in the forms on Monday, and goes to press Tuesday morning. The wrapping and mailing begins Wednesday. Please forward copy early.

Miscellany.

CLINICAL MEETING OF THE SURGICAL STAFF OF THE MASSACHUSETTS GENERAL HOSPITAL, JANUARY 16, 1922.

REPORT OF PROGRESS IN INVESTIGATIONS ON SHOCK.—DR. MONROE A. McIVER.

AFTER a brief review of the literature bearing on the relation of toxemia to traumatic shock, Dr. McIver described a method for the establishment of "cross circulation" between a normal and a traumatized animal. The results of the experiments were then given.

"Ten complete experiments have been carried out. Of this number seven non-traumatized animals who had received blood from the traumatized animals developed typical shock within a half hour. In three cases no shock was produced. Four experiments have been carried out as controls. None of these animals developed shock within one hour, but at the expiration of an hour and a half, in one case, the blood pressure had fallen to shock level."

Dr. McIver feels that very suggestive evidence has been obtained that some substance capable of producing shock is taken up by the circulation from a traumatized area.

ABSTRACT.

Drs. C. A. Porter and W. M. Shedden reported a case of total avulsion of the scalp followed by Reverdin grafting. The patient later complained of pressure headache and recurrent ulceration of the new scalp. Dr. Porter therefore made multiple drill holes through the calvarium to the dura, thereby establishing a collateral circulation, after which the ulcerations healed and the headache disappeared.

The authors summarized nine cases of avulsion of the scalp at the Massachusetts General Hospital and also reviewed the literature.

Dr. Brewster reported 24 cases of right colectomy, with two deaths (a mortality of 8.3 per cent.), and three cases of total colectomy, with one death.

He summarized his report as follows:

Twelve cases of epilepsy were operated upon, and in no case were the seizures stopped by the operation.

Nine cases were operated upon for symptoms supposed to be due to stasis in the ileum and cecum, with two deaths and a perfect result in seven.

It will be seen that the operation does not cure epilepsy; it may relieve constipation and symptoms of stasis, but carries a distinct risk, altogether too great to make it an operation to

be advised for any condition which does not demand relief of a mechanical obstruction.

RÉSUMÉ OF PAPER ON TETANUS, BY DR. R. H. MILLER.

The speaker reviewed the literature of tetanus, especially in regard to its occurrence in the World War, laying especial emphasis on the great value of the antitoxin, not only in preventing the occurrence of the disease, but in mitigating the severity of it, if it does occur. Statistics have shown that after prophylactic injection, local tetanus occurs in about 10 per cent. of the cases, whereas without, the local form occurs in only 1 per cent.; also, that the prophylaxis lengthens the incubation period to an average of about 35 days. In the British Army the mortality from tetanus fell from 57.7 per cent. to about 25 per cent. following prophylaxis. The speaker then reported 116 cases at the Massachusetts General Hospital from 1872 to the present time, showing how the mortality has steadily fallen with the more and more intensive use of antitoxin, which is given intraspinally, intravenously, and around the wound.

DR. HENRY C. MARBLE: At the Massachusetts General Hospital during the past two years, 1920 and 1921, there were 524 cases of fractures admitted to the wards for treatment.

Of these, 98 required open surgical operation. The operation may be divided as follows: Primary operation, 48; mal-union or non-union, 23; compound fractures, 27.

Primary operations consisted in general of replacement operations, that is, placing the bones in anatomical apposition as soon as possible and holding them in reduction by splints or plaster casts, rarely by absorbable material.

The operations used for mal-union or non-union were bone grafting, refracture, or excision of part of the bone.

Operations for compound fractures were débridement, followed by fixation in plaster of Paris or steel splints.

Infection. In the primary cases, there was infection in three cases; in the mal-union or non-union classes, there was infection in two cases. Of the compound fractures, 11 had more or less infection.

Bone Grafts. Osteoperiosteal graft, ten; inlay graft, seven; beef bone, one.

Bone Plates. Bone plates were applied three times; screws, once; nail, once; skeletal traction was applied 28 times (not included in the operations listed above); Steinman pin was used 12 times; ice tongues, 16.

Conclusion. The tendency in operative treatment of primary fractures has been towards simple replacement without internal fixation.

In cases of mal-union or non-union, the operations of choice are refracture or grafting by excision of a part of the bone. Skeletal traction is the method of election for traction in the lower extremity. Metal internal fixation is rarely used. Immediate reduction plus external fixation has been found the method of choice.

SAVING THE PHILIPPINES.

MAJ.-GEN. LEONARD WOOD, Governor-General of the Philippines, has found in that far-away section of the United States conditions indicating human life is very much the same in its perils and conditions there as at home. He has announced, as a foundation for the improvement of conditions in the Islands, an intensive campaign to teach the people how to avoid and combat the diseases that sap the vitality of the country. He has instructed the Director of Health Service to prepare a circular, setting forth the causes of various diseases and the methods of preventing them and stamping them out, which are not only to be posted in public places but which are also to be read to every class in the public schools throughout the Islands. —*The Red Cross Courier.*

SMALLPOX.

THE Department of Commerce, through the Bureau of the Census, announces that there have been very few deaths from smallpox in recent years. Since the beginning of annual compilations in 1900 the highest rate from this cause in the death registration area of the United States was 6.6 per 100,000 population in 1902, while in 1903 it was 4.2, and in 1904, 2.1, since which time the rate for the registration area has never reached 1 per 100,000 population. Much higher rates in certain states and cities, however, clearly show that the danger of smallpox in an unvaccinated population must not be lost sight of. The high rate (9.2) in 1920, in Louisiana, should serve as a warning.

BACKWARD CHILDREN.

BACKWARD children are not always, perhaps not often, backward because of either mental deficiency or slothfulness, says the *U. S. Public Health Service*. Many of them are backward solely because of such ordinary and easily remediable defects as adenoids, near-sightedness, or bad teeth.

A case in point was recently reported by the official representative of the Public Health Service in the eighth sanitary district of Vermont.

in which the Service is coöperating in a rural health work project.

Medical inspection of one of the graded schools in October, 1919, showed that it had been thought necessary to instruct in a special room sixteen pupils who had seemed to be unable to keep up with their respective classes. Physical examination showed that each of the sixteen had some serious hampering physical defect (chiefly enlarged tonsils, adenoids, or defective hearing or eyesight) which, rather than any mental handicap, was the probable cause of their inability.

Through the coöperation of the school directors, the facts were brought to the attention of the parents or guardians of the children, and all were set right before the end of the year.

On reëxamination of the pupils the next December (1920), it appeared that all of the sixteen previously backward children had caught up with their proper grades and were keeping up in them with their classmates. A year later, in December, 1921, some of these sixteen children were among the mental and physical leaders in their grades.

AMERICAN BIOLOGICAL STAINS.

H. J. CONN, Chairman of the Committee on Standardization of Biological Stains, in an article published in *Science*, March 17, 1922, declares in favor of American stains, and that the Grüber stains are not as constant or uniform as was formerly supposed. American stains are particularly good in bacteriological work. Certain American methylene blues are superior to any used before the war.

The chief uncertainty is whether the producers of American stains will stay in the business. The future depends on action by Congress.

INSTRUCTIVE DISTRICT NURSING ASSOCIATION.

THE year 1922 was ushered in for the Instructive District Nursing Association by a rush of work which indicates a marked change in health conditions from those of 1921.

Beginning almost with the first day, the new patients poured in until the number for January rose to 500 more than those of the same month last year, and those of February to an increase of 1,739 more than those of February, 1921. The somewhat startling totals of the two months mount up to 7,163 new patients and 54,730 visits against 4,961 new patients and 47,578 visits during the same months, 1921.

The remarkably low death rate was the outstanding feature of the extraordinary pressure of work during February, only 65 deaths occur-

ring—and many of these from chronic diseases—among the 10,000 patients carried during the four weeks of February. This means that while the number of patients increased enormously, the death rate remained practically normal.

The prevalence of grip, pneumonia, bronchitis, tonsillitis, and very severe colds was chiefly responsible for the increase of work during February, when 1,680 such cases were admitted. This is the first time since February of 1920 when there has been anything approaching an epidemic of these diseases; during that month there were 1,893 cases of grip and pneumonia admitted, that with an average amount of other diseases, made a total of only 252 more new patients than were admitted this month.

This was not the case in January, when there was a general increase in all diseases.

During the two months there were 138 cases of measles, 74 of chicken-pox and mumps, 6 of typhoid fever.

Eight hundred and twenty-seven pregnant women were admitted as patients, and 921 new-born babies.

The number of deliveries attended by the nurses in the four stations where such service is established, was 94—curiously enough, the exact number attended in 1920.

The nurses were very susceptible to the sicknesses prevalent during February. On one day, 26 were off duty, most of them sick themselves; others, because of sickness in their families. Because of the high standards maintained by the Association, it was extremely difficult to fill the places of the absentees, and never possible to increase the staff adequately. As a consequence, the burden was very heavy, more than twice the usual work being carried by a staff which averaged an increase of only nine nurses. The very sick people needed, many of them, two visits daily. It was, therefore, a struggle to make the prenatal and other preventive visits which are an essential part of all family health work.

ANNOUNCEMENT OF THE MEDICAL FELLOWSHIPS.

THE National Research Council announces the establishment of Fellowships in Medicine created for the purpose of increasing the supply of thoroughly qualified teachers in medicine in both clinical and laboratory subjects and in both curative and preventive aspects. The fellowships are supported by appropriations of the Rockefeller Foundation and the General Education Board, amounting in total to one hundred thousand dollars a year for a period of five years. Those receiving awards will be known as Fellows in Medicine of the National Research Council.

To qualify for appointment as a fellow, a candidate must have a degree of Doctor of Medicine or Doctor of Philosophy from an approved university, or preparation equivalent to that represented by one of these degrees. Only citizens of the United States or Canada will ordinarily be appointed, although the fellowship board is authorized to set aside this provision in exceptional cases. The fellowships will be open to both sexes.

Since the principal purpose of establishing these fellowships is to increase the number of competent teachers in the field of medicine, each incumbent will be required to gain experience in teaching. As creative work is regarded as essential to the best teaching, emphasis will also be placed upon research.

Fellows will be at liberty to choose the institutions or universities in which they will work, as well as the men under whose direction they will carry on their researches, subject to the approval of the fellowship board.

Appointments are to be made for a period of twelve months, beginning at any time in the year, with an allowance of six weeks for vacation. The time may be extended, however, if in the judgment of the board, the work which the fellow has done justifies it. The stipends are not definitely fixed in amount, but they are intended to enable the individual to live comfortably while carrying on his special work as a fellow.

The fellowships will be administered by a special committee, known as the Medical Fellowship Board of the National Research Council.

Correspondence concerning the fellowships should be addressed to the Division of Medical Sciences, National Research Council, Washington, D. C.

HEALTH LEGISLATION IN CONGRESS.

Reorganization of the Federal Departments.—The plan for a comprehensive reorganization of the Federal Departments, including the formation of a new department of public welfare, was submitted to the President six weeks ago. It has been announced that the President is giving this matter personal attention. In fact, the administration is committed to such reorganization and to a welfare department, having considered the latter as important as the Budget System, but there seems to be doubt in the minds of many as to whether the welfare department will ever materialize. The fundamental difficulty in the whole reorganization scheme is that the Cabinet officers are opposed to surrendering authority over bureaus already within their respective jurisdictions. Differences of opinion have arisen, and opposition has crystallized. It is a question whether

the President will submit the reorganization scheme to Congress at all this year. It is considered by many as unlikely that legislation on the subject would be passed, on account of its controversial nature. It would seem, therefore, probable that the various health functions of the Government will remain *in statu quo* for some time.

Appropriation Bills.—Commerce and Labor; Increase for Children's Bureau. H. R. 10559. Passed the House of Representatives, February 25, 1922. Passed the Senate, March 9, 1922, with amendments. Amendments to this bill in the Senate will increase the total appropriation of the Children's Bureau from \$1,511,040 to \$1,551,040. The item to investigate and report upon matters pertaining to the welfare of children and child life is increased from \$80,000 to \$120,000. The Senate also increased the appropriation for the Women's Bureau from \$75,000 to \$100,000.

H. R. 10101 passed the House of Representatives, February 7, 1922; passed the Senate, March 7, 1922. The Senate amended this bill by providing for the erection of a school for feeble-minded persons at a cost of \$300,000. The bill is now in conference.

District of Columbia.—For support of indigent insane of the District of Columbia in St. Elizabeth's Hospital, \$148,000.

United States Veterans' Bureau.—For vocational rehabilitation, \$73,714,182; for medical and hospital services, \$20,278,930. (There is a provision in this section permitting the U. S. Veterans' Bureau to allot portions of this appropriation to the Public Health Service, the Board of Managers of the National Home for Disabled Volunteer Soldiers and the War and Navy Departments to be used in the care of disabled World War veterans.)

Children's Bureau.—To carry out the provisions of the maternity and infancy act, \$490,000.

Public Building—Construction.—For repairs to Fort Mackenzie, Wyoming, U. S. Public Health Service Hospital, \$100,000.

Department of Agriculture.—H. R. 10730, introduced by Mr. Anderson from the Committee on Appropriations, March 6. This bill, which contains the annual appropriations of the Department of Agriculture for the coming year, has several items of public health.

Bureau of Animal Industry.—Eradication of tuberculosis. \$2,578,800; meat inspection, \$891,180; investigations of serums, antitoxins, etc., \$82,000.

Forest Service.—For sanitary facilities on public camp grounds, \$10,000.

Veterans' Bureau.—H. R. 10864, introduced by Mr. Langley, March 11, 1922; reported from Committee on Public Buildings and Grounds, March 14, 1922. authorizes the director of the

U. S. Veterans' Bureau to provide additional hospital and out-patient dispensary facilities for veterans. The bill authorizes the director to accept gifts or donations for this purpose, an appropriation of \$17,000,000 to be made.

Additional Appropriations Requested by the Executive.—The President has submitted supplemental estimates to the Senate requesting \$8,800 for the insane of Alaska (S. Doc. 154); \$11,000 for a water supply at Ellis Island (S. Doc. 155); and \$7,000 for medical charities in the District of Columbia (S. Doc. 158).

Incorporation of the American Society for the Control of Cancer.—The Senate Judiciary Committee voted on March 13 against all legislation proposing federal charters for private organizations which are not formed for the purpose of executing some power granted in the Constitution. This action is adverse to the bill for the incorporation of the American Society for the Control of Cancer (S. 802). The Light Houses for the Blind are also affected by this action.

Regulations Governing Relief of Indians.—H. R. 10772, introduced by Representative Snyder, March 7, 1922; referred to the Committee on Indian Affairs. This bill authorizes the Secretary of the Interior to extend medical care and other relief to the incompetent and restricted Indians, but provides that the cost of the necessary assistance shall be a charge against the individual Indian and his estate.

Creation of Federal Motion Picture Commission.—H. R. 10577, introduced by Representative Appleby, February 22, 1922; referred to the Committee on Education. This bill creates a new division of the Bureau of Education to be known as the Federal Motion Picture Commission. There would be three commissioners appointed by the President with full power to review motion picture films and issue licenses for them. The bill states that no picture which "would tend to impair the health, debase or corrupt the morals of children or adults, or incite to crime, or produce depraved moral ideas or debase moral standards or cause moral laxity in adults or minors," may be shown.

Miscellaneous Bills.—S. J. Res. 43. Granting authority to Central Committee of the American Red Cross to continue use of temporary buildings in Washington, D. C., as headquarters.

S. Res. 250. Authorizes the printing of 2,500 copies of Memorial Services held in honor of Major-General William C. Gorgas for the Senate Document Room.

S. 3278 provides building in District of Columbia for care of tubercular pupils.

TO MEMBERS OF THE MASSACHUSETTS MEDICAL SOCIETY.

If your annual dues are unpaid, you will not receive the JOURNAL.

OPPORTUNITIES FOR SERVICE IN VENEREAL DISEASE CLINICS.

MANY applications for assistants in venereal disease clinics have been received by the Associated Out-Patient Clinics. These positions are both for men and women, graduates and students. In most instances physicians with no special training in venereal disease will be considered. Any physicians who desire an opportunity to learn this specialty should communicate with Dr. Alec N. Thomson, 15 West 43rd Street, New York City.

The Section on Venereal Diseases of the Associated Out-Patient Clinics, of which Dr. Thomson is Secretary, has offered to act as a clearing house for information regarding opportunities for dispensary assistants in the venereal clinics of New York City.

The above applications for assistants came in reply to a letter and questionnaire recently sent to the directors of the various venereal disease clinics, inviting them to state their needs for assistants and to specify, not only the qualifications desired, but the clinical and professional opportunities offered.

PROPAGANDA FOR REFORM.

Another Remonstrance Against Mercury Inhalation.—During the last few years the attention of the medical profession has been directed by clever propagandists to the treatment of syphilis by procedures which involve the volatilization of mercury-containing mixtures by heat and the inhalation of the resulting volatile products. There is nothing novel in the principles concerned. Inhalations, as well as fumigations of mercury, have been tested at various times and the procedures have been abandoned because of the uncertain dosage. The Council on Pharmacy and Chemistry has refused to endorse preparations proposed for the treatment of syphilis which depended essentially on the administration of mercury by inhalation (Spiroicide not admitted to N. N. R.). In this decision it is sustained by a re-investigation of the inhalation treatment of syphilis carried out by Cole, Gericke and Sollmann. The investigators point out that the assumption that mercury is more promptly absorbed by the lungs was based on physical misconceptions. In fact, the mercury is condensed on the mucous membranes of the mouth, pharynx and respiratory tract. That in the mouth and pharynx is, for the most part, swallowed; and the absorption then takes place by the gradual conversion of the mercury into soluble compounds. In other words, the administration of mercury compounds by inhalation has no advantage over oral administration. It has the serious disadvantage of in-

definite dosage (*Jour. A. M. A.*, March 4, 1922, p. 654).

Our Knowledge of Vitamines.—It is generally accepted that a well-balanced diet provides the individual with such vitamins as are necessary to maintain growth and nutrition. The *British Medical Journal*, in a leading editorial, reiterates the statement that an abundant supply of vitamins exists in all fresh vegetables and that a considerable quantity occurs in milk and meat, provided the latter substances are obtained from animals fed on fresh foods. A normal adult, living on an ordinary diet containing a reasonable proportion of fresh vegetables is, therefore, certain of obtaining a plentiful supply of vitamins. Of all the mass of evidence which has accumulated relative to these substances, this fact is the point of greatest importance. It is, however, very unfortunately, the one point which those commercially inclined are unwilling to recognize (*Jour. A. M. A.*, March 11, 1922, p. 734).

VIOLATION OF THE REGULATIONS RELATING TO THE USE OF NARCOTIC DRUGS.

DR. J. WASHINGTON HILL, who combines preaching with the practice of medicine, is again before the court for an alleged violation of the law relating to the use of narcotic drugs. It is alleged that Dr. Hill sold needles for hypodermic use. This is not his first offense, for after a previous experience before the court, he was fined and his registration as a practitioner of medicine annulled for a time. A man who professes to be a teacher of the principles of religion, in addition to holding himself out to be able to practise medicine, must be singularly devoid of ethical sense and worldly wisdom, in conducting himself so as to be suspected of irregularities of similar type on successive occasions. Perhaps he has the gambling instinct and enjoys the uncertainties of irregular behavior.

A HALF CENTURY OF PUBLIC HEALTH.

UNDER this title, the American Public Health Association is publishing a book of great value in commemoration of the semicentennial of the Association.

Probably the last letter ever written by Professor William T. Sedgwick expressed approval of the plan to publish this volume.

American Climatological and Clinical Association.

TWELFTH CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.

Thirty-ninth Annual Meeting at Washington, D. C., May 2, 3, 4, 1922. President, William Duffield Robinson, Philadelphia; Secretary and Treasurer, Arthur K. Stone, Framingham Centre, Mass.; Recorder, Cleveland Floyd, Boston; Committee of Arrangements, Chairman, Thomas A. Clayton, M.D., 1826 R Street, N.W., Washington, D.C. The headquarters of the Association will be at the New Willard Hotel.

PROGRAM: First day, Tuesday, May 2: Meeting of the Council, 9.15 A. M. Scientific Session, 10 A. M. to 12 M. Business Session, 12 M. Luncheon Recess, 1 P. M. Scientific Session, 2.30 to 5 P. M. General Session of the Congress of American Physicians and Surgeons, 8 P. M. Second day, Wednesday, May 3: Scientific Session, 9 A. M. Business Session, 12 M., Election of Officers. Adjournment, 1 P. M., Luncheon Recess. Meeting of the Congress of Physicians and Surgeons, Hotel Washington, 2.30 P. M. Annual Dinner, Cosmos Club, 7 P. M. Third day, Thursday, May 4: Scientific Sessions, 9 A. M. to 2.30 P. M.

SCIENTIFIC SESSIONS, New Willard Hotel, Tuesday, May 2, 10 A. M. President's Address, William Duffield Robinson, Philadelphia. Memorial Notices: Charles E. Quimby, by Guy Hinsdale; Robert Childs Paterson, by J. Woods Price.

1. The Prognosis of Tuberculosis. A Study of 1000 Former Patients of the Trudeau Sanatorium, by F. B. Trudeau, Saranac Lake. 2. Relationship Between the Thyroid and Nocturnal Dyspnea, by Roy D. Adams, Washington. 3. The Diagnosis of Juvenile Tuberculosis, by John B. Hawes, 2nd, Boston. 4. Bacteriemia, by Raymond Clark, Brooklyn.

BUSINESS MEETING, 12 M. Luncheon, guests of Dr. Charles W. Richardson, 2.30 P. M.

5. Pneumothorax, by J. Woods Price, Saranac Lake. 6. A Study of Seven Cases which Present Diastolic Heart Murmurs, by John M. Swan, Harry B. Clough, James M. Flynn, Rochester, N. Y. 7. The Influence of Cardiac Conditions and Infection of Various Kinds of Lung Tuberculosis, by H. R. M. Landis, Philadelphia. 8. Some Clinical Observations on Angina Pectoris, by Samuel A. Levine, Boston (by invitation). 9. Lymphocyte Index in Tuberculosis, by Gerald Webb, Colorado Springs. 10. Report of Committee to Consider the Manner of Co-operation in Scientific Work with the American Meteorological Society, by Carroll E. Edson, Denver, Colo., Guy Hinsdale, Hot Springs, Va. 11. The Bile, with Especial Reference to Bacteriology, by George Morris Piersol and H. L. Bokur, Philadelphia. 12. Co-operative Research on the Atmosphere and Man, by Ellsworth Huntington, Yale University (by invitation).

GENERAL SESSION OF THE CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS, 8 P. M. President's Address, Dr. Frank Billings.

Wednesday, May 3, 9 A. M. 13. Review of Some Novel Methods of Regulating the Circulation Which May Prove of Clinical Value, by J. Madison Taylor, Philadelphia. 14. Chronic Uremia. Its Early Diagnosis and Treatment, by Wm. H. Mercur, Pittsburg. 15. The Part of Industry in Health Work, by Arthur K. Stone, Framingham, Mass. 16. Animal Diseases Communicable to Man, by Thomas B. Rodgers, Woodbury, N. J. (by invitation). 17. Pay Clinics, by

Walter L. Niles, New York City. 18. A Study of the Glucose Tolerance Test in the Obese, by James E. Paullin, Atlanta. 19. Exhaust Gas from Automobiles as a Health Hazard, by Yandell Henderson, Yale University (by invitation). 20. Clinical Observations on the Management of Diabetes Mellitus, by Lawrence Litchfield, Pittsburg. 21. Climatic Treatment of Tuberculosis, with Special Reference to One Hundred and Nine Consecutive Cases Sent to Silver City, New Mexico, during the Last Twenty Years, by B. R. Shurly, Detroit.

ANNUAL MEETING AND ELECTION OF OFFICERS AND NEW MEMBERS, 12 M.

GENERAL SESSION OF THE CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS, 2.30 P. M., the Hall of Nations of the Hotel Washington.

Food and Dietetics. 1. Factors Which Enter into an Adequate Diet, by Dr. E. V. McCollum. 2. Experimental Evidence of the Lack of Vitamin B in Nutrition, by Dr. L. B. Mendel. 3. The Distribution and Properties of Vitamin C, by Dr. H. C. Sherman. 4. The Relation of the Diet to Rickets, by Dr. Paul G. Shipley. 5. The Pellagra Problem and its Relation to Diet, by Dr. Joseph Goldberger. 6. The Bearing of the Newer Findings upon the Problems of Medical Practice, by Dr. L. Emmet Holt.

ANNUAL DINNER, COSMOS CLUB, 7 P. M.

Thursday, May 4, 9 A. M. 22. The Relative Importance of the Physiological Compared with the Anatomical Conception of Disease as Illustrated by Tuberculosis, by F. M. Pottenger, Monrovia, Cal. 23. Temperature and Humidity Features of a Near Desert Climate in Southern California, by Ford Ashman Carpenter, Los Angeles. 24. Pulmonary Abscess and its Prevention in Surgery of Upper Air Tract, by Charles W. Richardson, Washington. 25. A Note on the Practice of Artificial Pneumothorax by the Hippocratic School, by Allen K. Krause, Baltimore. 26. *Aerologia by Domenico Panaralo, Rome, 1642*. A treatise on Air and Winds. Dr. Hinsdale will make some remarks about Panaralo and show his volume. By Guy Hinsdale, Hot Springs, Va. 27. Thoracoplasty, by A. G. Shortle, Albuquerque, N. M. 28. Diaphragm Irregularities, by Ralph C. Matson, Portland, Ore.

2.30 P. M. 29. Hyperthermal Baths in Chronic Disease, by Wm. R. Fontescue Fox, London, Eng. 30. Basic Principles of Vaccine Therapy, by J. H. Tyndale, Lincoln, Neb. 31. Prevalence of Goitre in Girls as Noted in the Examination of 1500 Entering Students in Milwaukee College, by J. Gurney Taylor, Milwaukee. 32. Heliotherapy in Tuberculosis, by Guy Hinsdale, Hot Springs, Va. 33. Bronchiectatic Lung Abscess—Operation—Recovery, by Hugh M. Kinghorn, Saranac Lake, and Willy Meyer, New York City.

Correspondence.

OBSERVATIONS OF A MEDICAL STUDENT.

March 25, 1922.

Mr. Editor:

I trust you will not deem it presumptuous on the part of a medical student to send you for publication a communication so full of generalizations such as are permissible only to men of much greater maturity and experience. But you will recall that the medical student of today is in a position to feel the full force of the continual broadsides from the

propaganda guns of preventive medicine, and he cannot help but be infected by its enthusiasm.

The work of the American Society for the Control of Cancer is bringing forth a splendid sympathetic response both on the part of individuals and groups, such as insurance companies, to its plea for frequent physical examinations in order to detect malignancy in its earliest stages, and thus to cope with it successfully. There is no reason, of course, why such examinations should not help, in a great measure, to prevent any disease of a chronic nature.

Now, just as, proverbially, the shoemaker is poorly shod, and the tailor poorly clothed, the doctor seems to be poorly provided with—if not proper treatment in disease—at least proper prophylaxis against preventable disease.

Few medical students have the time or the inclination for physical exercise of any sort, and fewer medical faculties provide for—or even take the trouble to encourage—such exercise. Physical examinations are voluntary only, and the will is most usually lacking. Medical research workers, because they are working, as a rule, with biological materials that require warm and moist atmospheres, spend 10 to 12 hours a day, and frequently seven days a week, in laboratories thus provided without any regard for their own health. And when doctors get sick enough to go to bed they call in some medical friend who, while he may be most minute in his attention to details of history and examination when dealing with other patients, fails, as a rule, thoroughly to examine his colleague.

The fact that, not infrequently one sees house officers in the larger hospitals, and medical students, under the very eyes of the best clinicians, developing serious cases of pulmonary tuberculosis and full-blown hyperthyroidism, is but a pointer in the general direction to show the carelessness on the part of men most interested in preventing and curing disease, with regard to their own health.

This negligence does not stop with the men associated immediately with the schools and hospitals, but applies particularly to the general practitioners who not only lead most unhygienic lives with respect to sleep and diet, but frequently endanger their lives by carrying on their practice while afflicted with some acute condition for which, if it occurred in a patient, they would prescribe, unreservedly, rest in bed. I am acquainted with two practitioners, one of whom spent the tenth night after having his appendix removed on an obstetrical case, and the other did the same while suffering with the beginning of an attack of influenza. And both are practicing in Greater Boston where, certainly, the risks to the patient of being unprovided with medical assistance in the absence of their own physician are minimum.

Not only with regard to themselves, but frequently with their immediate families evidence exists of gross carelessness or neglect on the part of physicians. As examples of that I need merely to mention the not too rare death of a doctor's or nurse's mother from incurable cancer of the breast or uterus, or the death of a doctor's father from urinary infection resulting from hypertrophy of the prostate because his son delayed sending him to the surgeon.

Finally, if not for its own sake, then at least for the sake of setting an example to the general public, the medical profession should wake up to the fact that its members are made, too, of mortal clay, subject to mortal ills.

Sincerely yours,

LEO M. DAVIDOFF,

Harvard Medical School, Senior Year.

REGISTRY OF BONE SARCOMA.

227 Beacon Street,
BOSTON, MASS., February 27, 1922.

Mr. Editor:

I wonder if the result of my letter in your issue of February 2nd would interest your readers? My letter was intended to enable the Registry of Bone Sarcoma to find out how many cases of Bone Sarcoma were known to be living in Massachusetts, whether cured, under treatment, or moribund. It suggested that if every one of the 5494 physicians in this State would drop me a postal stating whether or not he knew of a case, we should have at once the best statistics ever obtained on the frequency of this disease.

In reply I have had, up to date, only seventeen negative and two positive answers. Is this because your Journal is not read or because of the indifference of the medical profession as to whether the frequency of bone sarcoma is known or not?

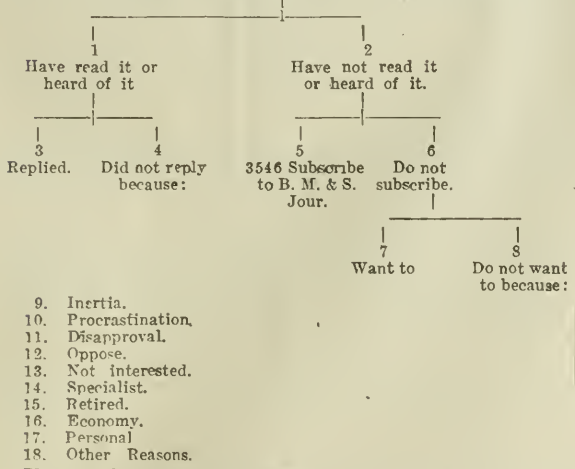
Perhaps your readers may be interested in the human nature problem involved, even if they are indifferent as regards the advance of medical science. Your editorial board may also be interested to know what proportion of your 3546 subscribers in Massachusetts read the Journal thoroughly. I therefore enclose a diagram which aims to analyze the problem.

If you are interested enough to publish this letter and diagram in three successive issues, I will undertake to send a return postal to every physician listed, as living in Massachusetts, in the Directory of the American Medical Association, who has not dropped me a postal a week after the third issue. On one-half of the postal I will have this diagram printed: the other half will have the return address to me. Eventually you can publish the diagram with the numbers following each heading. This will give the facts to the few interested in bone sarcoma and the many interested in the *Boston Medical & Surgical Journal*, and in the psychology of the medical profession.

Sincerely,

E. A. CODMAN, M.D.

5495 PHYSICIANS IN MASSACHUSETTS.
LETTER ON REGISTRY OF BONE SARCOMA IN BOSTON MEDICAL & SURGICAL JOURNAL, FEBRUARY 2, 1922.



Please reply to this by consecutive numbers, e.g., 1-4-15 means "I have read or heard of the Registry and did not reply because I have retired from practice"; 2-6-8-16 means "I have not read nor heard about the Registry of Bone Sarcoma and do not subscribe to the *Boston Medical and Surgical Journal* from motives of economy."

[NOTE.—Dr. Codman states that he has received forty reports since the publication of his first letter—one positive and thirty-nine negative. The profession is urged to assist in the compilation of facts asked for.—Editor.]

NOTICES.

NEW ENGLAND PEDIATRIC SOCIETY.—The seventy-fourth meeting of the New England Pediatric Society will be held at the Boston Medical Library on Friday, April 14, 1922. The following papers will be read: Treatment of Asthma and Associated Diseases in Childhood, Allan R. Cunningham, M.D., Boston. Leukemia and Severe Anemia in Childhood: A Study of Thirty-Seven Cases, John Lovett Morse, M.D., Boston; Bone Tuberculosis in Childhood (with lantern slides), Frank R. Obert, M.D., Boston. Light refreshments will be served after the meeting. Richard M. Smith, M.D., President; Lewis Webb Hill, M.D., Secretary.

HARVARD BOARD OF OVERSEERS.—The nominating committee of the Harvard Alumni Association will present the names of Dr. William Sidney Thayer, Baltimore, and Dr. Herbert Charles Moffitt, San Francisco, as candidates for the Board of Overseers.

BERLIN PSYCHOLOGICAL LABORATORY.—Dr. Wolfgang Köhler has been appointed director of this institution to fill the vacancy caused by the retirement of Professor Stumpf.

MASSACHUSETTS GENERAL HOSPITAL.—A clinical meeting of the Staff of the Massachusetts General Hospital will be held on Monday, April 10th, at 8.15 p. m., in the Lower Out-Patient Amphitheatre. The program will be as follows: Demonstration of Cases from the Skin Department, Dr. Harvey P. Towle; The Surgical Treatment of Tuberculosis of the Larynx, Dr. D. Crosby Greene and Dr. J. C. Kirby; Intestinal Indigestion in Eczema and Psoriasis, Dr. Francis H. Burnett. Physicians are invited to attend. F. A. WASHBURN, M.D., Director.

NEW ENGLAND DERMATOLOGICAL SOCIETY.—The Annual Meeting of the society will be held Wednesday, April 12th, at 3.15 p. m., in the Surgical Amphitheatre, Boston City Hospital. Members may bring guests. Henry D. Lloyd, M.D., Secretary.

NEW ENGLAND OPHTHALMOLOGICAL SOCIETY.—A special meeting will be held at the Massachusetts Charitable Eye and Ear Infirmary, Boston, Friday, April 14, at 8 p. m. Professor Barraquer, Colonel Elliot, and Dr. Reynolds will be guests at this meeting.

CLINICAL CONFERENCES AT MEMORIAL HOSPITAL, WORCESTER.—Should sufficient response be received, it is proposed to hold a series of clinics, on Thursday mornings, from 10 to 12, during April and May of this year, at Memorial Hospital. The clinics must, of necessity, consider examples of disease in the hospital at the time, so that no set program can be stated. Even so, the cases are very likely to exemplify problems commonly encountered, and will thus be valuable for study. Neither will there be so many cases that hasty consideration will be encouraged.

It is also proposed to discuss such matter as lends itself to more or less abstract discussion; for instance, the relatively simple method of obtaining a knowledge of renal function. Suggestions of subjects adaptable to similar discussion will be gladly received.

It is in mind to emphasize, during this series, the relationship between "laboratory" findings and clinical phenomena, endeavoring to point out how the information given by the more difficult and expensive laboratory procedures may possibly be obtained by careful clinical observation.

As it is not desirable that more than four should form a group, a greater number tending to lessened opportunity for the members, division of applicants into more than one group may be necessary. Limitation of numbers may also be necessary.

Should interest in the clinics fail for any reason, the series will be closed, although in this regard, suggestions tending to make the work more profitable will always be welcome.

Announcement of the opening of the clinics will be made before April first.

Please send applications to Oliver H. Stansfield, M.D., Memorial Hospital, Worcester, Mass.

THE American Association of Anaesthetists and the Mid-Western Association of Anaesthetists will hold a joint meeting in St. Louis, May 23-24, at Hotel Jefferson, the first three days of the A.M.A.

RESEARCH CLUB OF HARVARD MEDICAL SCHOOL.—At the meeting to be held in the Amphitheatre of Building A of the Harvard Medical School, on Friday, April 7th, at 12.30 o'clock, Dr. M. J. Schlesinger will talk "On the Nature of Botulinus Toxin."

NATIONAL BOARD OF MEDICAL EXAMINERS.

The dates for the next two examinations of the National Board of Medical Examiners are as follows: Part I and II, June 19, 20, 21, 22, and 23, 1922. Part I and II, September 25, 26, 27, 28, and 29, 1922.

Applications for the June examination should be in the Secretary's office not later than May 15th, and for the September examination not later than June 1st. Application blanks and circulars of information may be had by writing to the Secretary, Dr. J. S. Rodman, 1310 Medical Arts Building, Philadelphia, Pa.

RESIGNATION OF DR. MICHAEL F. FALLON.

In 1915 Governor David I. Walsh appointed Dr. Michael F. Fallon as a member of the Board of Registration in Medicine. Dr. Fallon has forwarded his resignation to Governor Cox.

Dr. Fallon brought to the service of this Commonwealth a developed intellect and a judicial temperament. Although burdened with professional responsibilities, he rendered loyal service to the State and represented the highest standards of medical ethics. By nature intolerant of everything indicating dishonorable behavior, he exhibited charity toward those unfortunate persons who, either through cupidity or mental incapacity, failed to measure up to the accepted standards of conduct, and was never unduly severe in dealing with those who were charged with criminal or unprofessional practice. He was not disturbed by opposition or unjust criticism, and did not hesitate to perform his duty.

By this resignation the State loses a valuable public servant. It is hoped that the Governor will select a worthy successor.

BOOKS FOR REVIEW.

The JOURNAL acknowledges the receipt of the following books for review:

Diseases of the Eye. 9th Edition. By George E. deSchweinitz. Published by W. B. Saunders Co., Philadelphia. 832 pages. Price \$10.

An Introduction to Dermatology. By Norman Walker. 7th Edition. Published by Wm. Wood & Co., New York. 366 pages. Price \$7.

The Vitamins. By H. C. Sherman and S. L. Smith. Published by The Chemical Catalog Co., Inc., New York. 273 pages.

The Treatment of Ordinary Diseases. By Beverley Robinson. Published by American Medical Publishing Co., New York City. 132 pages. Price \$2.

The Pathological Gall-bladder. By Arial W. George and Ralph D. Leonard. Published by Paul B. Hoeber, New York. 143 pages. Price \$10.

Modern Methods of Treating Fractures. By Ernest W. Hey Groves. Published by Wm. Wood & Co., New York. 435 pages. Price \$8.

Nutrition and Growth in Children. By William R. P. Emerson. Published by D. Appleton & Co., New York. 342 pages. Price \$2.50.

Individual Gymnastics. By Lillian Curtis Drew. Published by Lea & Febiger, Philadelphia. 225 pages. Price \$2.

The Treatment of Common Female Ailments. By Frederick John McCann. Published by Edward Arnold & Co., London. Longmans, Green & Co., New York. 152 pages. Price \$3.

THE MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

REPORTED WEEK ENDING MARCH 18, 1922.

Disease	No. of Cases	Disease	No. of Cases
Anterior poliomyelitis	1	Mumps	129
Anthrax	1	Ophthalmia neonata	
Chicken-pox	114	torum	9
Diphtheria	163	Lobar pneumonia	208
Dog-bite requiring anti-rabic treatment	5	Scarlet fever	229
Encephalitis lethargica	5	Syphilis	46
Epidemic cerebro-spinal meningitis	6	Suppurative conjunctivitis	6
German measles	8	Tetanus	1
Gonorrhea	108	Tuberculosis, pulmonary	168
Influenza	292	Tuberculosis, other forms	27
Measles	538	Typhoid fever	7
		Whooping-cough	128

RECENT DEATHS.

DR. THOMAS EDWARD CLARK, born in Tyringham, Mass., September 29, 1828, died in Los Angeles, Cal., November 27, 1921. He received the degree of M.D. from the College of Physicians and Surgeons in New York in 1866, and practiced in New York for several years. He was interested in scientific subjects and was a fellow of the American Academy of Arts and Sciences, Boston.

DR. CAROLINE MARIA SWEET, a prominent physician of Springfield, died of cerebral hemorrhage at her home in that city, March 17, 1922, at the age of sixty-three.

Dr. Sweet was born at Manchester, Ct., in 1859, the daughter of Samuel G. and Harriet E. (Hall) Sweet. After attending the Manchester schools and Hartford high school she entered Boston University School of Medicine, where she graduated as an honor pupil in 1894. She settled in Springfield.

When the Wesson Memorial Hospital was opened, Dr. Sweet was made visiting physician and remained on the hospital staff until about 10 years ago, when she retired from that office. About that same time she conceived the idea of organizing a medical society among local women doctors, and was successful in forming the Women's Medical Society.

Dr. Sweet was a member of the Springfield Women's Club and of the College Club. She was a lover of outdoor life and owned a cottage near Mt. Tom, where she spent week-ends during the summer. With her extensive practice she found time to do a great amount of charitable work. She is survived by a brother, Dr. Frederick Sweet, of Manchester, Ct.

The Boston Medical and Surgical Journal

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Original Articles.

MODIFICATIONS OF APPARATUS AND IMPROVED TECHNIC ADAPTABLE TO THE BENEDICT TYPE OF RESPIRATION APPARATUS.

- PAPER I.—VALVES VERSUS THE ELECTRIC IMPELLER.
PAPER II.—TECHNIC.
PAPER III.—GRAPHIC METHOD FOR THE ESTIMATION OF THE METABOLIC RATE.
PAPER IV.—MOISTURE ABSORBING EFFICIENCY OF CO₂ ABSORBENTS.

BY PAUL ROTH, M.D., BATTLE CREEK, MICH.

PAPER III.

GRAPHIC METHOD FOR THE ESTIMATION OF THE METABOLIC RATE.

THE kymograph has always been a very adaptable and valuable adjunct to the Benedict type of respiration apparatus for the study of the respiratory exchange and in the determination of the metabolic rate. Though quite indispensable with the original Benedict, "the Universal," the systematic use of the kymograph with the "Portable" has not been insisted upon because the metabolic rate can be deter-

mined without it. However, its use has been recommended for making additional observations or as a means to reveal and record various conditions pertaining to the apparatus and the behavior of the subject during a test. Dr. F. G. Benedict has recently called my attention to the fact that the fundamental point elaborated in this paper is outlined in his description of "*Ein Universalrespirationsapparat.*"¹

The purpose of this paper is not only to emphasize the value of the kymograph for such purposes as just mentioned, but to show, also, that a kymograph record of the movements of the spirometer bell taken during a respiration test, simultaneously with a graphic time record, as shown in Figure 1, is not only very practical but that it is the most accurate basis for the measurement of the oxygen consumption of the subject with this type of apparatus. In fact, if properly taken, such a graph is nothing less than a most accurate record of the changes in the position of the spirometer bell during an observation period. It can be measured much more easily and accurately directly on this record, than is now customary from readings indicated by the moving pointer against the millimeter scale. Every operator must admit that while the "catching" of a reading is relatively easy with subjects who breathe regularly, it is often difficult and of questionable

accuracy in irregular respiration. It is for the purpose of minimizing such unavoidable errors that it has been deemed advisable to take three successive readings, both at the start and at the end of a test, and average the three distinct periods thereby constituted.

Even more elaborate precautions are, for justifiable reasons, now advised in a suggestion that the start and the end readings for each period be obtained from the average of ten consecutive readings.

The graphic method does better still, and all in the simple operation of drawing a line along the lower border of the respiration curve which gradually ascends as the bell descends during the test period. This line may properly be designated as the "oxygen consumption line" or, briefly, the " O_2 line." (See Fig. 1.) The rise of this line, in a given number of minutes, also graphically recorded below the respiration curve, represents accurately the distance the bell has fallen during that time. This simple measurement is illustrated in Figure 1 (4), and is done at leisure after the record has been removed from the kymograph drum.

Technical difficulties are in this manner successfully avoided, besides securing in this kymographic tracing a trustworthy and significant record of certain conditions under which the test is effected. No disturbance of more than a trifling nature can occur to the subject while he is under observation, without affecting the respiration in a way readily detected from the tracing. Not infrequently, also, the test is started before the patient has returned to the basal conditions which the 30-minute preliminary rest period is intended to insure, but which are always more or less disturbed in the process of starting the test. If, as a result, the metabolic rate has been temporarily increased, the respiration curve will readily show it, and any portion of the tracing which does not represent the probable basal metabolic rate of the subject can be disregarded in the measurements. See Figure 1 (1, 2, 4). It is better to base the calculations on a short, undisturbed period of only four or five minutes than on a longer one which includes vitiated sections. I observed this years ago when using Benedict's Universal Apparatus, in which a very delicate meter is used to measure the oxygen consumed. Kymographic tracings were invariably taken, also, and afforded the opportunity to compare the results. This was done in every test, and not infrequently, for the reasons above given, more reliance could be placed on the measurement based on a selected portion of the tracings than on the meter readings for the entire test period. The two methods, however, agreed remarkably well, as a rule, when the tracings showed no disturbance throughout the test. On account of even slight disturbing factors,

the most important of which is the consciousness of the subject of his own respiration, often intensified by his effort to breathe correctly, the degree of expansion of the lungs even at the end of expiration may vary considerably. This degree of expansion may vary rapidly and repeatedly as shown in tracings 1a, 2a and 2b, or, as fairly well shown at the end of tracing 1a and at the beginning of tracing 3a, the change of degree of expansion may be maintained and be quite constant for one or two minutes, or perhaps longer. It is evident that this possible source of error, which will generally be revealed by the kymograph, will otherwise pass undetected and introduce an error which may easily amount to 10 per cent. or even more.

Figure 1 illustrates the advantages of the graphic method in various forms of respiration, of which there are three, based on the regularity of the respiratory movements.

1. Regular respiration: Tracings (1b and 4).
2. Irregular respiration: Tracings (1a, 2a and 2b).
3. Rhythmically irregular respiration: Tracings (3a and 3b—which is a typical "Cheyne-Stokes").

Regular respiration in clinical cases is the exception rather than the rule. Therefore it is often difficult to pick out an average normal expiration at the end of which a reading should be taken.

Figure 2 shows a most practical and simple outfit in which a kymograph with timing device is adapted to a "Modified Benedict with Valves," described in Paper I, April 6, 1922. The accessories required are usually found in most laboratories. The equipment need not be expensive, though much money can be spent on a more elaborate kymograph or tracing and timing devices. I prefer to make the records with ink rather than on smoked paper, though the latter has the advantage of taking tracings with the simplest kind of marker. The graphic method is invaluable in experimental research, as, for instance, in the study of the effect upon the metabolic rate of various physio-therapeutic or medicinal agents, especially when the effects occur within a short period of time. Changes in the metabolic rate are easily detected and measured from the tracing, especially when trained subjects are used.

Advantages of the graphic method. It simplifies the technique. It reduces to a minimum the necessary procedures. There are no spirometer readings to be made. Stop-watches can be dispensed with entirely. The kymograph automatically records the time, the oxygen consumption and, to a large extent as well, the working condition of the apparatus and the behavior of the subject. The average respiration

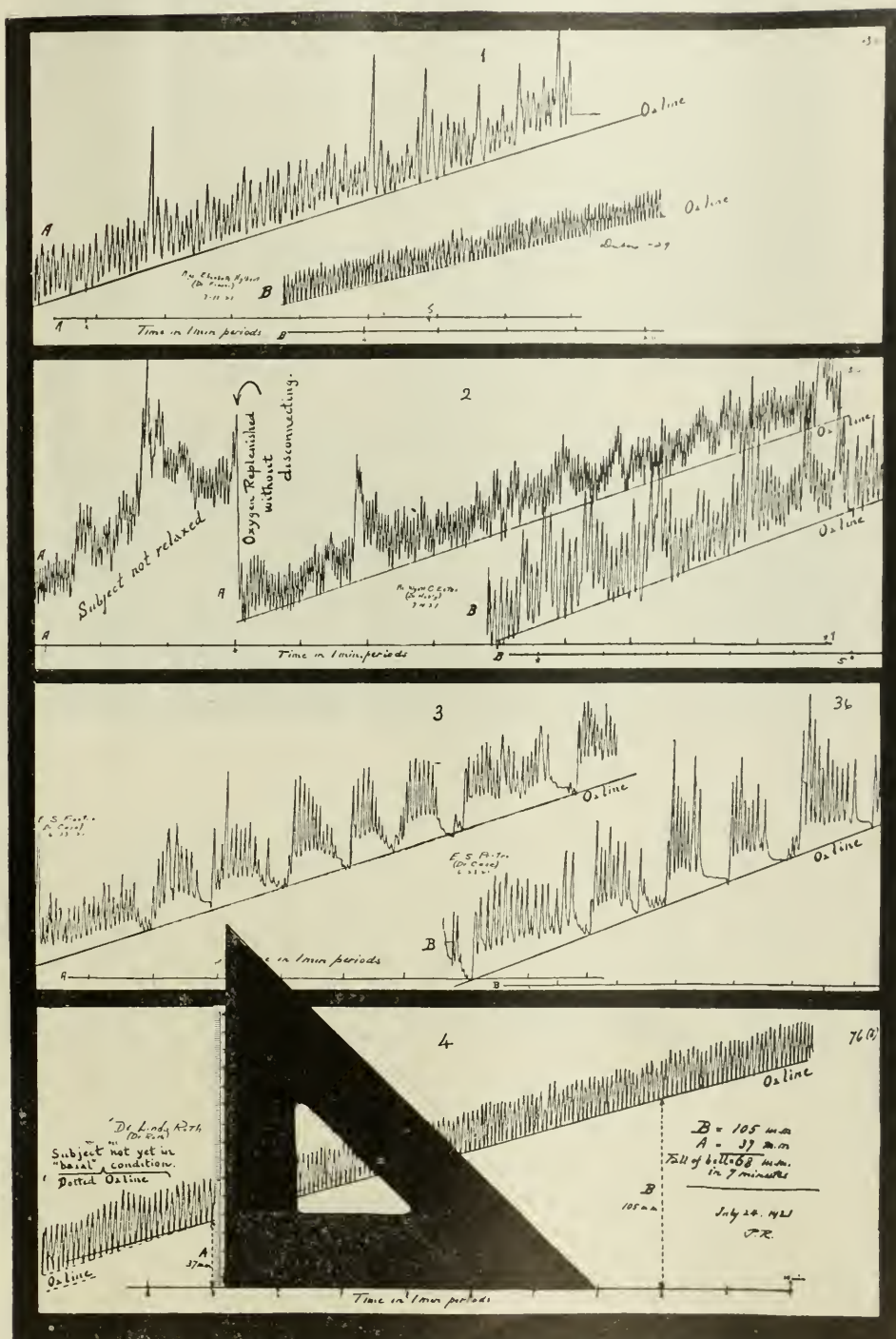


FIG. 1.—Illustrating types of respiration, locating the "O₂ consumption line," and measuring its rise in a recorded number of minutes for estimating the rate of oxygen consumption.



FIG. 2.—Complete Outfit for the Estimation of the Metabolic Rate by Means of the Kymographic Method. Adapted to the Benedict type of Respiration Apparatus (Roth "Valve" Modification). Note the Adaptability of the Wheel Chair.

count per minute is most conveniently obtained from the tracing. One operator only is needed to supervise the entire operation, including the counting of the pulse, to observe the spirometer temperature and the barometric pressure, while at the same time an occasional glance at the kymograph keeps him informed as to whether the test is progressing under desirable conditions. The computations, as ordinarily carried on, are materially reduced if based on the graph which, furthermore, allows the full advantages presented in the considerably simplified system of calculation suggested further on in this paper.

As with all apparatus of this type, several observations can be made successively, without disconnecting. All that is necessary is to refill the bell with oxygen, Figure 1 (2). In some cases, however, it is preferable to remove both the nose-clip and the mouthpiece and allow the patient to "rest a bit," or "take a breath," to insure continued relaxation.

Aside from the specific application of the graphic record to the measurement of the metabolic rate, the study of the respiration curve should prove to be in itself of clinical interest. This has been shown by Dr. David L. Edsall,

who has taken advantage of the great wealth of material accumulated at the Nutrition Laboratory in Boston to make there a clinical study of respiration.²

The "standard" conditions uniformly required for the estimation of the "basal" metabolic rate and, likewise, the absolutely uniform mechanical process by which all tracings are invariably taken, give to such respiration curves an ideal mathematical and volumetric value for purposes of measurement and comparison.

Lastly, a permanent graphic record is obtained and is available at any time for checking the results and calculations. It is, besides, a certificate of the quality and reliability of the operator's technic.

The Kymograph.

There are on the market a number of kymographs which answer the purpose very nicely. The tracings shown in Figure 1 were taken with a kymograph,³ the drum of which takes a sheet of paper 15-17 cm. wide. While it is possible, as before stated, to obtain very accurate results from calculations based on a selected four- or five-minute portion of a tracing, the latter should cover a longer period from which

to select the best portion obtained unless, as may often happen, the entire tracing is good. Everything considered, and for a specific reason yet to be mentioned, the best practice is to continue the test long enough to obtain, if possible, a tracing from which a satisfactory portion of at least six-minutes duration can be selected. For this purpose, a taller drum taking a wider paper (20-22 cm.) is preferable. The one shown in Figure 2 was obtained by simply fitting a 22 cm. sleeve made of tin, over the drum. The wider paper makes it possible to obtain a tracing of the desirable uninterrupted length without running the risk of having the tracing pen rise and be caught beyond the limits of the writing surface, as may happen in cases with an excessive oxygen consumption or when the subject happens to take an unusually deep breath.

It is important that the drum be securely mounted on its shaft. Guard also against the possibility of the paper slipping on the drum while the tracing is being taken. No matter how snugly the paper may have been mounted, it may slip unless the extra precaution is taken to fasten it to the drum at some convenient point, with a bit of wax, gum, adhesive, or a clip. Each sheet of paper will hold at least two or three tracings if they are recorded as shown in Figure 1.

The best speed at which the drum should revolve is about 40 mm. per minute and must be regular.

Tracing Pen.⁴

Figure 2 shows how a small "vest pocket" fountain pen can be attached to the binding-post which has been mounted for such a purpose on the counter-weight of the spirometer bell. The pen may feed and trace more readily with the back of the point. A drop of ink deposited with a dropper directly on the pen-point at the beginning of each tracing, will better insure a steady flow, whether the pen has been filled or not. In fact, the pen can be used without the barrel and ink reservoir.

Time Record.

An ink tracer similar to the one just referred to is adaptable for recording time in one-minute periods on the line which it traces and which also serves as a base-line for measurements. The time record, though traceable by hand, as explained below, is best recorded automatically by mounting the tracer on an electro-magnet actuated by one or two dry cells and connected with a timepiece which makes an electric contact once a minute. If it unexpectedly fails to work (using any well-regulated timepiece with a second hand, or a stop-watch), the time can be recorded by hand, by gently tapping the tracer on the even minute

after the respiration tracing has been well started, again exactly one minute later, and once more in six minutes, or at any time, on the exact minute, before terminating the test. If the kymograph is known to run at a uniform speed throughout a test, the missing markings which may be needed can easily be located later by measurement and the total time checked accurately from the one-minute space. An alarm clock, with a small second hand made to come in contact with a delicate spring properly insulated from the clock itself, can be made to give creditable service. More elaborate electric timing clocks are obtainable from laboratory apparatus supply houses.⁵ Whatever the device, it is worse than useless if it is not dependable.

Technic.

Except for the substitution of the graphic method instead of taking series of spirometer readings and timing periods with a watch, the technic is fundamentally the same as that described in Paper II. As soon as the patient has been "connected" and the spirometer bell is in motion, the kymograph is started and the respiration and time tracers are set in operation. The spirometer temperature is recorded, the pulse rate observed and recorded at intervals. The barometric pressure is noted. The test is continued until the operator is satisfied that from the respiration tracing obtained a satisfactory, uninterrupted section of exactly six minutes' duration (one-tenth of an hour) can be selected for subsequent measurement. The temperature of the spirometer chamber is again recorded. Before terminating the test, however, a graphic proof of the presence or absence of a leak during each period can now be obtained in addition, by the simple method advocated by Benedict,⁶ and which consists in placing a weight (40-50 gms.) on the spirometer bell, after a suitable tracing has been obtained, continuing operations a few minutes longer. Obviously, if there is a leak, the added weight will readily increase it and put it in evidence by a sharper rise of the O₂ line, whereas in the absence of a leak, the O₂ lines, before and after adding the weight, will both have the same angle with the base line.

CALCULATIONS.

This phase of the subject should be dealt with in short order merely by giving one or two samples of calculations which anyone could follow without having even the slightest conception of the fundamental principles involved. Such a blind process inevitably leads, sooner or later, to serious mischief. The following presentation is by no means exhaustive, but is chiefly intended to help lay the foundation for intelligent work.

The ultimate object in the calculations is to determine the percentage increase or decrease of the metabolic rate of the subject above or below the established normal average standards. These standards are expressed in terms of calories, per square meter of body surface per hour, or per twenty-four hours. The calories elaborated by the subject are calculated from the amount of oxygen he has absorbed during the test (1000 cc. of oxygen absorbed = 4.825 cal. See par. e below). The oxygen consumption is determined from the change in the position of the spirometer bell, which may be expressed directly in cubic centimeters but which, for the scheme of calculation here described, is best given in millimeters. Each millimeter of the fall of the bell during a test represents a definite amount of oxygen absorbed or its equivalent value in calories. This would, of course, vary according to the size of the bell. To shorten the process of calculation, not only is the selection of a section of tracing of one-tenth of an hour (6 minutes) recommended, but the apparatus is regularly supplied with a spirometer bell with a volume of 20.73 cc. per mm. of its height. With a bell of this size, *each mm. of the fall of the bell, or rise of the O_2 line, in a six-minute period, represents exactly one calorie per hour.* 1 mm. in 6 min. = 20.73 cc. O_2 = 207.3 cc., or .2073 liter per hour. $.2073 \times 4.825 = 1$ cal. per hour.

The necessary correction for temperature

and pressure is introduced next in the calculations, as will be explained. Before applying this formula, let us make a brief survey of all the items to be gathered in a routine test, omitting those which do not enter in the computations:

Name of subject. sex, age, height, net weight.

(a) *Body surface* based on the height and weight. (See Carpenter⁷, p. 108, Table 18. See also p. 11 for use.)

(b) The "*Average Temperature*" and (c) the "*Temperature Increase*" are noted from the readings of the spirometer bell thermometer, at the beginning and at the end of a period. With the valve apparatus a change of temperature, during a period of usual length of time, seldom if ever occurs. At any rate, a rise of less than one 1° C. can be ignored in the calculations, but if a rise of 1° C. or more is noted, allowance is readily made for it by adding for each degree C. of rise of temperature, .5 mm. to the total mm. rise of the O_2 line in six minutes. This correction is identical to that applied for the same purpose, but in a different manner, fully explained by Benedict in his method of calculation.⁸

(d) *The Rise in mm. of the O₂ line in a selected six-minute portion of a respiration tracing or, if the kymograph is not used, the Fall in mm. of the spirometer bell* observed on the mm. scale during a period timed in the usual way with a stop-watch.

TABLE 1.

Factors for reducing Volumee to 0 C. and 760 mm.

Formula : $\frac{1}{1+0.00367t} \times \frac{P}{760}$

Bar in.	Temperature in degrees Centigrade																				
mm.	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
600	.748	.745	.743	.741	.738	.735	.733	.731	.728	.726	.724	.722	.719	.716	.714	.711	.709	.707	.705	.702	.700
605	.755	.751	.749	.747	.745	.742	.740	.737	.734	.732	.730	.727	.725	.722	.720	.717	.715	.713	.711	.708	.706
610	.761	.757	.755	.753	.751	.748	.746	.744	.741	.738	.736	.733	.730	.728	.726	.723	.721	.719	.717	.714	.712
615	.767	.764	.762	.759	.757	.754	.752	.750	.747	.744	.742	.739	.736	.734	.731	.729	.726	.724	.722	.720	.718
620	.773	.770	.768	.765	.763	.760	.758	.756	.753	.750	.748	.745	.742	.740	.737	.735	.732	.730	.728	.726	.724
625	.779	.776	.774	.771	.769	.766	.764	.762	.759	.756	.754	.751	.748	.746	.743	.741	.738	.736	.734	.732	.729
630	.786	.782	.780	.778	.775	.772	.770	.768	.765	.762	.760	.757	.754	.752	.749	.747	.744	.742	.740	.738	.735
635	.792	.789	.786	.784	.781	.778	.776	.774	.771	.768	.766	.763	.760	.758	.755	.753	.750	.748	.746	.744	.741
640	.798	.795	.792	.790	.787	.784	.782	.780	.777	.774	.772	.769	.766	.764	.761	.759	.756	.754	.752	.749	.747
645	.804	.801	.798	.796	.793	.791	.788	.786	.783	.780	.778	.775	.772	.770	.768	.765	.762	.760	.758	.755	.753
650	.811	.807	.804	.802	.799	.797	.794	.792	.789	.786	.784	.781	.778	.776	.773	.770	.768	.766	.764	.761	.758
655	.817	.814	.811	.808	.805	.803	.800	.798	.795	.792	.790	.787	.784	.782	.779	.776	.774	.772	.770	.767	.764
660	.823	.820	.817	.814	.811	.809	.806	.804	.801	.798	.796	.793	.790	.788	.785	.782	.780	.778	.776	.773	.770
665	.829	.826	.823	.820	.817	.815	.812	.810	.807	.804	.802	.799	.796	.794	.791	.788	.786	.784	.782	.779	.776
670	.836	.832	.829	.826	.823	.821	.818	.816	.813	.810	.807	.804	.802	.800	.797	.794	.792	.790	.787	.784	.782
675	.842	.839	.836	.833	.830	.828	.825	.822	.819	.816	.814	.811	.809	.806	.803	.800	.798	.796	.793	.790	.787
680	.848	.845	.843	.840	.837	.834	.831	.828	.825	.822	.820	.817	.815	.812	.809	.806	.803	.801	.798	.796	.793
685	.854	.851	.848	.846	.843	.840	.837	.834	.831	.828	.826	.823	.821	.818	.815	.812	.810	.807	.804	.802	.799
690	.861	.857	.855	.852	.849	.846	.843	.840	.838	.835	.832	.830	.827	.824	.821	.818	.815	.813	.811	.808	.806
695	.867	.863	.861	.858	.855	.853	.850	.847	.844	.841	.838	.836	.833	.830	.827	.824	.821	.818	.816	.813	.811
700	.873	.870	.867	.864	.862	.859	.856	.853	.850	.847	.844	.841	.838	.836	.833	.830	.827	.825	.822	.819	.816
705	.879	.876	.874	.871	.868	.865	.862	.859	.856	.853	.850	.847	.845	.842	.839	.836	.834	.831	.828	.825	.822
710	.885	.882	.880	.877	.874	.871	.868	.865	.862	.859	.856	.853	.851	.848	.845	.842	.840	.837	.834	.831	.828
715	.892	.888	.885	.883	.880	.877	.874	.871	.868	.865	.862	.859	.857	.854	.851	.848	.845	.842	.840	.837	.834
720	.898	.895	.892	.889	.886	.883	.880	.877	.874	.871	.868	.865	.862	.859	.857	.854	.851	.848	.845	.842	.840
725	.904	.901	.898	.895	.892	.889	.886	.883	.880	.877	.874	.871	.868	.865	.862	.859	.857	.854	.851	.848	.845
730	.910	.907	.904	.901	.898	.895	.892	.889	.886	.883	.880	.877	.874	.871	.868	.865	.862	.859	.857	.854	.851
735	.917	.913	.910	.907	.904	.901	.898	.895	.892	.889	.886	.883	.880	.877	.874	.871	.868	.865	.863	.860	.857
740	.923	.920	.917	.913	.910	.907	.904	.901	.898	.895	.892	.889	.886	.883	.880	.877	.874	.871	.869	.866	.863
745	.929	.926	.923	.920	.916	.913	.910	.907	.904	.901	.898	.895	.892	.889	.886	.883	.880	.877	.874	.871	.869
750	.935	.932	.929	.926	.923	.919	.916	.913	.910	.907	.904	.901	.898	.895	.892	.889	.886	.883	.880	.877	.874
755	.942	.938	.935	.932	.929	.925	.922	.919	.916	.913	.910	.907	.904	.901	.898	.895	.892	.889	.886	.883	.880
760	.949	.945	.941	.938	.935	.932	.928	.925	.922	.919	.916	.913	.910	.907	.904	.901	.898	.895	.892	.889	.886
765	.954	.951	.947	.944	.941	.938	.935	.931	.928	.925	.922	.919	.916	.913	.910	.907	.904	.901	.898	.895	.892
770	.960	.957	.954	.950	.947	.944	.941	.937	.934	.931	.928	.925	.922	.919	.916	.913	.910	.907	.904	.901	.898
775	.967	.963	.960	.957	.953	.950	.947	.944	.940	.937	.934	.931	.928	.925	.922	.919	.916	.913	.910	.907	.903
780	.973	.969	.966	.963	.959	.956	.953	.950	.946	.943	.940	.937	.934	.931	.928	.925	.922	.919	.916	.913	.910

Calculated by E. H. Clarke.

(e) *The Calorific Value of Oxygen.* (4.825 calories per liter of oxygen absorbed.) This value varies slightly according to the proportion of fats and carbohydrates oxidized by the subject. With trained subjects, and from relatively prolonged or repeated periods of observations, the calorific value of oxygen is accurately deducted from the Respiratory Quotient (Vol. CO_2 eliminated) \div (Vol. O_2 consumed). (Carpenter⁷, p. 104, Table 13.) But during short periods of observations the volume of CO_2 eliminated fluctuates much more readily than the consumption of oxygen and, particularly with untrained subjects, Respiratory Quotients obtained even by the most refined technic, are of doubtful accuracy. It is, indeed, quite evident from a survey of the results secured with the kind of subjects met with in clinical work, that, in general, greater reliance can be placed on the average calculated calorific value of oxygen (which is 4.825, assuming .82 as the Average Respiratory Quotient⁹) than on a determined value based on quotients obtained in short periods of observations.

(f) Factors for correcting to 0°C . and 760 mm. pressure: calculations made at the "Average Temperature" and "Barometric Pressure." (Carpenter's Tables, pp. 87-102, Table 10). This table does not give barometric pressures below 741 mm., consequently a condensed table covering pressures from 600 mm. and above was prepared for this paper (See Table 1).

(g) *Normal Standards:* (Aub and Du Bois). For men and women, ages 14 to 80, in calories

per square meter of body surface per hour. (Carpenter⁷, p. 122, Table 28. See p. 13 for description and use.)

(h) *Normal Standards:* (Harris-Benedict). For men and women, ages 21 to 70, in calories per 24 hours predicted from body-weight, age and height. (Carpenter⁷, pp. 110-121. Tables 24, 25 for men, and 26, 27 for women. See pp. 12, 13 for description and use.)

(i) *Normal Standards:* (Carpenter⁷, pp. 108-109. See also pp. 11, 12 for description and use.) Table 19 (Benedict and Talbot), for new-born infants. Table 20 (Benedict and Talbot), for boys and girls. Table 21 (Benedict and Hendry), for girls from 12 to 17 years of age, for whom this table should be used in preference to Table 20.¹⁰

(j) *Basal Metabolic Rate:* Expressed in per cent. above or below the Normal Standard. Considering 0 as the Normal Average Rate, the normal range has generally been placed between -10% and $+10\%$.

Sample Determination of the Basal Metabolic Rate, based on the following Kymograph Tracing (Fig. 3) of the movements of the spirometer bell, and on the data recorded in this particular case.

CASE. Mr. E. H. C. Age 38. Height, 176 cm. Net weight, 84.0 kgs. (a) Body surface, 2.0 sq. m.: Bar. pressure, 745 mm. (f) Factor for T. and P., .901. (h) Normal average, 39.5. (e) Cal. value O_2 , 4.825 per liter. (b) Ave. Temp., 24°C . (c) Temp. Incr., 0. Time, 6 min. (d) Rise O_2 line in 6 min., 94 mm. (j)

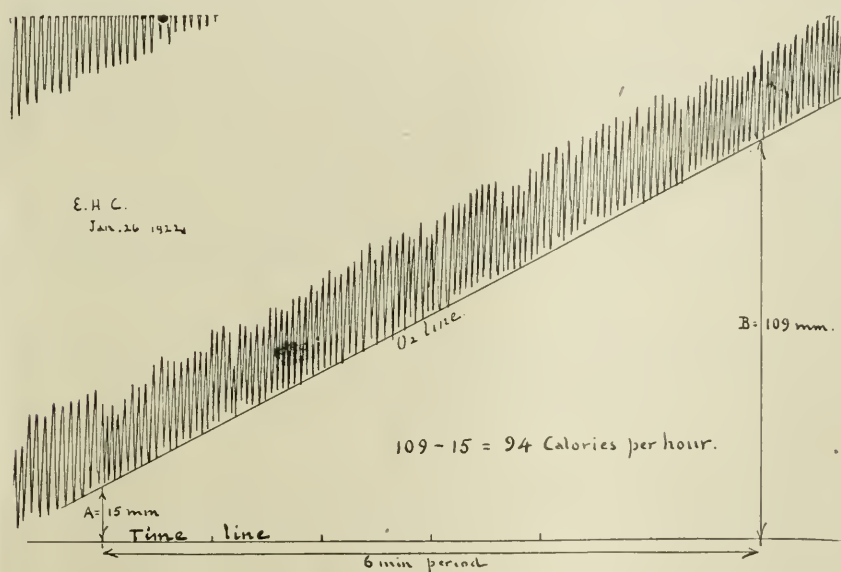


FIG. 3.—Sample "Graphic" illustrating method of measuring the fall of the spirometer bell from a selected six-minute section of a kymographic tracing of the movements of the bell taken during a respiration test.

Basal metabolic rate +7% (See below). (d) Rise O_2 line in 6 min. = 94 mm. (See graphic above). Spirometer bell factor, 20.73. (The lettering refers to the corresponding explanatory paragraphs above enumerated.)

Calculations: 94 mm. rise of the O_2 line in 6 min. (See graphic), representing 94 calories per hour (d), the calculations are reduced to the following simple steps:

1. Correct for temperature and pressure (f)
 $94 \times .901 = 84.69$ Cal. per hour.

2. Divide by body surface in sq. m. (a)
 $84.69 \div 2 = 42.3$ Cal. per sq. m. per hour.

3. Estimate per cent. increase (or decrease) from the predicted normal average 39.5 (h): 42.3 is 7% above 39.5; in other words, the basal metabolic rate in this case is +7 (j).

Sample Determination of the Basal Metabolic Rate of the case above given, but calculated from the Spirometer Readings taken at the beginning and at the end of a period directly from the mm. scale of the apparatus.

Assuming that a 10 min., 18 sec. (10.3 min.) period, with a spirometer difference of 161.5 mm., was recorded, the calculations in this case would merely require to first convert the 161.5 mm. in 10.3 min. to the equivalent in 6 min.: (161.5 mm. in 10.3 min. = 94 mm. in 6 min.) after which proceed as above given ($94 \times .901 \div 2 = 42.3$ Cal. per sq. m. per hour) which is a metabolic rate of +7.

SUMMARY.

The adaptation of the kymograph for the determination of the metabolic rate by means of respiration apparatus of the spirometer type is urged.*

A complete outfit is described.

The advantages to be derived from this graphic method are chiefly: greater accuracy through the possibility of better controlling or verifying the most important conditions which must be insured during a test in both subject and apparatus.

The technic is not only improved but is simpler.

A spirometer bell with a capacity of 20.73 c.c. per mm. of its height is adopted because it allows the use of the following formula which shortens the calculations: One mm. change of the position of the bell (factor 20.73) in a 6 min. period represents one Cal. per hour, assuming the average respiratory quotient .82 with the corresponding calorific value of oxygen of 4.825 Cal. per liter.

Sample determinations with and without the kymograph are given.

*Confirmatory evidence is about to be published from the Nutrition Laboratory, Boston, Mass., by Dr. F. G. Benedict, who, I learn, has conducted an independent research along similar lines.

REFERENCES.

- 1 Benedict, F. G.: Deutsches Archiv f. Klinische Medizin, Vol. 107, 1912, p. 175. See also Benedict, F. G.: Jour. A.M.A., Vol. 77, No. 4, p. 248, July 23, 1921.
- 2 Edsall, David L.: Clinical Study of Respiration. Bos. Med. and Surg. Jour., Vol. 167, No. 19, pp. 639-651, November 7, 1912.
- 3 The "Porter" Kymograph, Medium Spring. Made by the Harvard Apparatus Co., Back Bay P. O., Boston, Mass.
- 4 Recently a cone-shaped metal pen point was tried with satisfactory results. It is made by the Republic Flow Meters Co., Diversey Parkway, Chicago, Ill., and is designated as Type I.T.L. A special ink must be used, and is obtainable in red or green. The same firm just announces a "New Style V-Shape Pen," which will not readily clog.
- 5 The suggestions given above are intended for operators who may wish to adopt this kymographic method. Mr. Warren E. Collins, 584 Huntington Ave., Boston, Mass., will give assistance in securing any of the parts needed.
- 6 Benedict: Jour. A.M.A., Vol. 77, No. 4, p. 248, July 23, 1921.
- 7 Carpenter, Thorne M.: Tables, Factors, and Formulas for computing Respiratory Exchange and Biological Transformations of Energy. Publication 303, Carnegie Institution, Washington, D. C., 1921.
- 8 Benedict, F. G.: BOSTON MED. AND SURG. JOUR., Vol. 178, No. 20, p. 675, May 16, 1918.
- 9 Benedict, Emmes, Roth, and Smith: Average Respiratory Quotient for 88 Men and 66 Women. Jour. Biol. Chem., 1914, 18, p. 139.
- 10 Benedict and Hendry: BOSTON MED. AND SURG. JOUR., Vol. 184, Nos. 9-13, March 3, 10, 17, 24, 31, 1921.

PAPER IV.

MOISTURE-ABSORBING EFFICIENCY OF CARBON DIOXIDE ABSORBENTS.

In the valve type of apparatus air passes through the entire circuit at a much slower rate than with the assistance of the impeller, and, with the valves installed as here recommended, the direction of the air current is opposite to that obtained with the impeller.

In his "Notes on the Use of the Portable Respiration Apparatus," Benedict makes the following statement: "Although the large amount of moisture expired from the lungs of the subject is directly discharged into the bell before it reaches any form of water-absorbent, the total volume of expired air, when diluted by the continuous supply of air in the apparatus, gives a very low humidity. This has been proved by repeated tests with the psychrometer in the connection between the mouthpiece and the spirometer bell."¹

In the valve modification as here suggested, the direction in which the air is driven is reversed. Instead of leading the expired air with its high content in moisture and CO_2 to the spirometer chamber and other portions of the apparatus, through which it must pass before it finally reaches the CO_2 and moisture-absorber, the air is conveyed directly to the latter, where it is freed from moisture and CO_2 before it reaches the other part of the circuit. It seems reasonable to expect that in confining the moisture-laden expired air to parts which are less than one-sixth of the total circuit, the bulk of the circulating air could be maintained at a relatively high degree of dryness in spite of the decreased rate of ventilation. Therefore it might be assumed that, as with the impeller, no correction for moisture is neces-

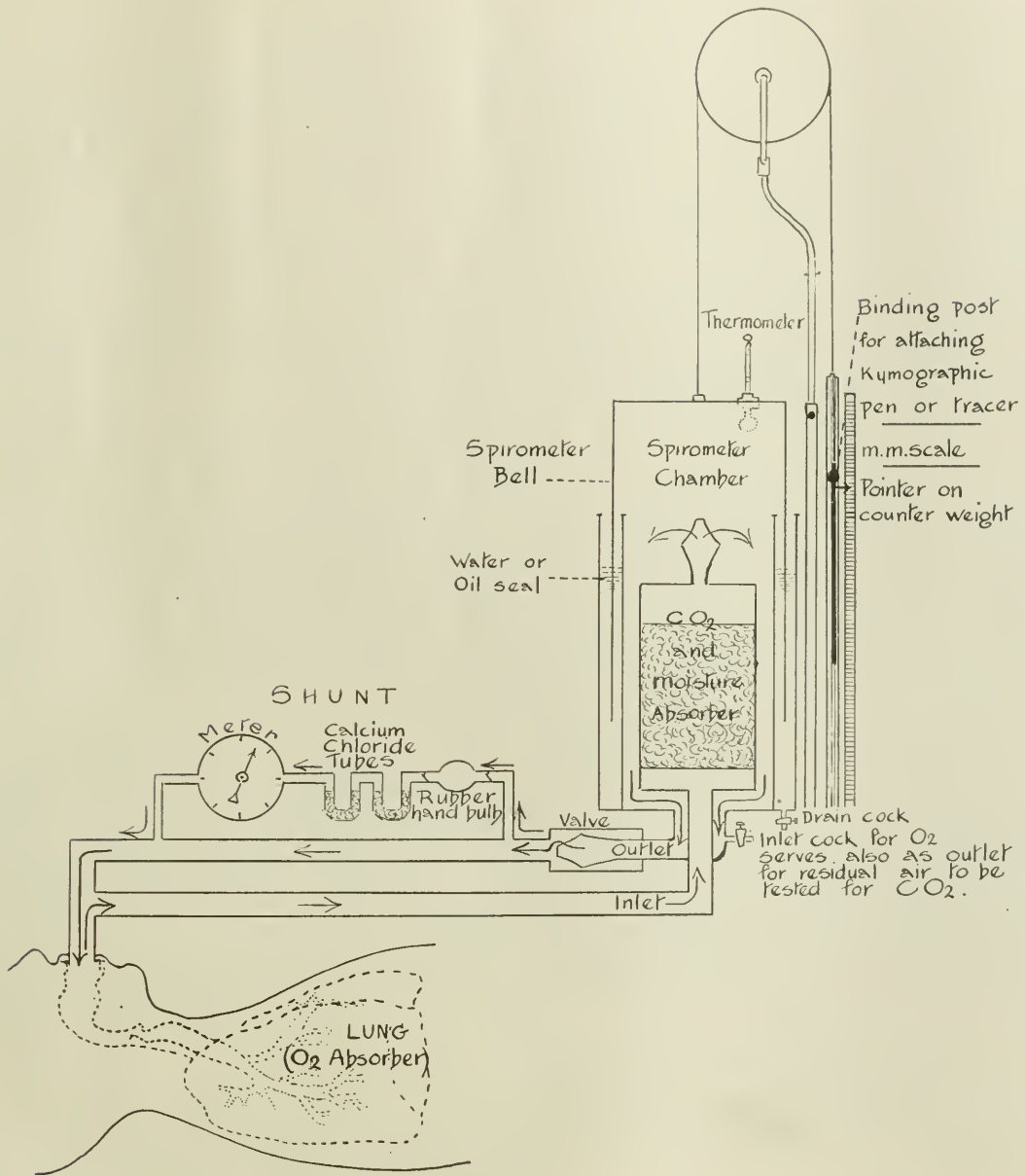


FIG. 1.—Diagram of the Benedict type of Respiration Apparatus (Roth "Valve" Modification), showing the entire so-called "closed" air-circuit. In addition, the diagram shows the rubber hand bulb, calcium chloride tubes, and air meter placed, as a by-pass, in the circuit for the determination of the moisture content of the circulating air during a test.

sary in the calculations. There was, however, a probability of error which, though relatively small, cannot be ignored, and investigation was deemed advisable.

Figure 1 shows diagrammatically how the apparatus was fitted up for the purpose of determining the amount of moisture present during the test, more especially in the bulk of the circulating air of both types of apparatus.

A shunt or by-pass was placed in parallel circuit with one or the other of the rubber tubings between the spirometer chamber and

the mouthpiece. The shunt, which included a rubber hand bulb, two calcium chloride tubes and a delicate gas meter, served to direct, during a test period, as much of the air to be tested as desired through the weighed calcium chloride tubes. After passing through the meter, the air was returned to the apparatus.

The technic which was uniformly carried out was as follows: "The apparatus was made ready as for the routine test; the subject breathed in it for a total period of ten minutes; the first five minutes were allowed to

bring the circulating air to a relatively uniform and constant level of temperature, moisture content, etc.*

The temperature of the air inside the spirometer was noted once a minute during the entire 10-minute period. The room temperature and barometric pressure were also recorded once for each test.

During the second five-minute period, ten litres of air was directed, at the rate of two litres per minute, through the calcium chloride tubes and the meter. The weight of the moisture collected by the calcium chloride was obtained and calculated in per cent. of saturation at the temperature observed. Simultaneously with this gravimetric estimation, a dry and a wet bulb thermometer, inserted in one or the other of the large tubes between the spirometer and the mouthpiece, were observed. The readings taken from these thermometers proved to be inconsistent and unreliable, due to conditions unfavorable to the use of this method of moisture determination with the valve type of apparatus or to faulty technic, or both. After a number of trials, their use was discontinued, and the observations based entirely on the estimation of moisture by weight. At any rate, the latter method is undoubtedly the more reliable one. The circulating air was thus tested for moisture content in both types of apparatus, before and after its passage through the CO₂ and moisture-absorber. To suit the object of certain observations, the shunt was reversed at times or fitted on the other tube. In some observations the air passing through the shunt was taken directly from the spirometer chamber by means of a small rubber tube threaded through a hole in the outlet tube back into the spirometer, up by the side of the absorber, directly over which it ended.

The amount of moisture found was surprisingly high, with but little better showing with the electric impeller. Several closely agreeing determinations of the moisture in the bulk of the circulating air gave the following average results:

With valves, 57 per cent. saturation.

With impeller, 61 per cent. saturation.

Determinations were also made with the valves so installed as to reverse their action and to circulate the air in the same direction as that obtained with the impeller, with a resulting average of 79 per cent. saturation. Little thought had been given, up to this time, to the possibility that the discrepancy between these results and those reported by Benedict might be due to the kind of soda lime used. In fact, the impression was, as expressed by Dr.

Benedict, that, "In this type of apparatus, almost any kind of soda lime will do."² This undoubtedly was quite true with the type of soda lime used at the Nutrition Laboratory in Boston, and which is high alkali soda lime and a relatively good moisture as well as CO₂ absorbent, as shown by its readiness to deliquesce and clog. When a certain grade of soda lime secured from the market proved to be very inefficient in CO₂ absorbing power, "Wilson" soda lime was adopted in our work and was used when the above-mentioned moisture determinations were made. This grade has unquestionably a remarkably high CO₂ absorbing power, but unfortunately is inefficient as a water-absorbent.

Mr. E. J. Warnick, technician in the metabolism laboratory of Lakeside Hospital, Cleveland, Ohio, called my attention to a very interesting absorbent sold under the name of "Natron Soda."³ He claims most satisfactory results using it in combination with calcium chloride in the Benedict Respiration Apparatus. Although it deliquesces very rapidly when exposed to moist air, I have found it very adaptable, even when used without calcium chloride, for the absorption of moisture as well as of CO₂.

A series of moisture determinations was repeated with the valve apparatus, comparing the moisture-absorbing power of "Wilson" soda lime with that of "Natron soda." It was desirable to determine, also, to what extent the use of water as a seal in the spirometer increased the vapor contents of the air in the apparatus during a test.

Following are the results, which include also tests made at the same time with the combined use of "Wilson" soda lime covered with a layer, only one inch in thickness, of coarsely granular calcium chloride.

AVERAGE SATURATION IN BULK OF CIRCULATING AIR.

6 determinations—Wilson soda lime—water seal	73%
2 determinations—Wilson soda lime—oil seal..	63%
Per cent. of moisture due to water seal....	10%
4 determinations—Natron soda—water seal....	11%
4 determinations—Natron soda—oil seal.....	0%
Per cent. of moisture due to water seal.....	11%
3 determinations—Wilson soda lime—one inch layer calcium chloride†—water seal.....	39%

These results clearly show that even with a water seal a sufficient degree of dryness of the air in the valve apparatus can easily be obtained, making it unnecessary to make a correction for moisture in the calculation if the air is maintained below 20 or 25 per cent. saturation.

Oil as a seal is somewhat objectionable, as it prevents easy access to the absorber inside the spirometer chamber, merely on account of the

*Under ordinary conditions not less than 2 or 3 minutes are required to establish this "level," but may not always suffice to also bring the subject back to the "basal conditions" which the usual half hour rest before a test is intended to insure, but which are more or less disturbed in the process of "connecting" and setting the apparatus in operation.

²Sold by the Uehling Instrument Co., 71 Broadway, New York City.

³In routine determinations a larger amount (about 3-inch layer) of coarsely granular anhydrous calcium chloride is advisable.

oil dripping from the bell when it is removed.

The reader will very much appreciate the following communication received from Professor Robert E. Wilson, Director of the Research Laboratory of Applied Chemistry, Massachusetts Institute of Technology, Cambridge, Mass.

"Replying to your letter of October 18, with regard to the use of our soda lime for Benedict's apparatus, would say that you are quite correct in stating that we do not claim for the soda lime any appreciable water-absorbing power. As pointed out in my article on 'Soda Lime as an Absorbent for Industrial Purposes,'³ high efficiency for CO₂ can only be obtained by having a low alkali content and a high water content, which of necessity gives a high vapor pressure to the air. By increasing the alkali content to 6 per cent., and reducing the water content to 14 per cent., thereby sacrificing distinctly in efficiency of CO₂ absorption, it is possible to make a soda lime which will maintain a somewhat lower vapor pressure, but even this soda lime cannot be considered in any sense as an efficient drying agent. The use of still higher alkali contents inevitably results in caking, channeling, overheating, low efficiency for CO₂ and the other evils attendant upon using high alkali soda lime, such as is now on the market.

"It is our conviction that if it is desired to absorb both CO₂ and moisture, the most efficient method, from a standpoint of both cost and bulk of absorbent required for a given amount of absorption, is to use our regular soda lime for CO₂ and anhydrous calcium chloride for absorbing moisture, since the latter is very efficient in this respect and forms solid hydrates rather than the deliquescent mass produced when the water is absorbed by caustic soda."

Based on observations made for over a year, I find that caustic soda, especially in the form of Natron soda, has, weight for weight, more CO₂ absorbing capacity than any grade of soda lime which I have ever tried. Besides, I have found it to still absorb moisture efficiently after it has become unfit for complete CO₂ absorption. On the other hand, the absorbing power of soda lime for moisture is lost long before it becomes unfit for CO₂ absorption.

I have used, with splendid success, soda lime mixed with caustic soda or "Natron Soda," and likewise Wilson soda lime combined with calcium chloride. The tendency to cake and clog is less marked with the latter combination than when Natron soda or caustic soda is used alone or in combination with soda lime. I have not tried the combination of Natron soda with calcium chloride.

Whatever the material used, it should in any case be examined frequently enough to prevent clogging. It is no trouble at all to occa-

sionally (once or twice a week, or oftener if necessary) empty the contents of the container, remove only the caked portions and return the rest to the can with the addition of some fresh material. In this way the efficiency of the contents of the absorber can be much prolonged.

When as much moisture as 80 per cent. saturation is present in the bulk of the circulating air, the error involved amounts to 1.5 to 3 per cent., according to the temperature during a test. Consequently, the use of a good absorbent for moisture very easily brings the error within negligible limits. On the other hand, if an efficient moisture absorbent is used, whether it be with the impeller or with the valves, an empirical average correction of minus 2 per cent. should be made.

CONCLUSIONS.

In the determination of the metabolic rate by means of the Respiration Apparatus (spirometer type), the absorption of moisture from the circulating air must be insured.

A good absorbent for carbon dioxide may have a low moisture-absorbing power.

A good CO₂ absorbent used with an efficient moisture-absorbent makes an ideal combination.

An average correction of 2 per cent. should be made if the circulating air is maintained at a high degree of moisture content.

This series of papers would not be complete without a free, though brief acknowledgment of my great indebtedness to Dr. Thorne M. Carpenter of the Nutrition Laboratory, Boston, Mass., for his contribution of valuable time in going over this series of papers, and for the helpful criticism which he has very freely offered.

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VAGINAL CESAREAN SECTION, WITH A REPORT OF TWELVE CASES.

By LOUIS E. PHANEUF, M.D., F.A.C.S., Boston.

Associate Professor of Clinical Gynecology, Tufts College Medical School; Gynecologist and Obstetrician, Carney Hospital; Visiting Obstetrician, St. Elizabeth's Hospital.

In order that the deep, irregular cervical tears which are apt to follow a rapid delivery through a rigid, undilated cervix might be avoided, Dührssen, in 1890, recommended that deep incisions be made in the vaginal portion of the cervix. These incisions were made in either the anterior or the posterior halves of the cervix, or both, but the lateral portions

were avoided. It was soon found, however, that the incisions did not reach high enough to overcome the resistance of the internal os, that extensive lacerations which were difficult to suture were apt to follow, and that hemorrhages which were difficult to control sometimes occurred.

Realizing that his incisions in the cervix did not enlarge the canal sufficiently for immediate delivery, Dührssen devised the operation which, in 1895, he described under the name of "anterior vaginal hysterotomy," and in 1896 called vaginal cesarean section. The original operation only called for the anterior incision; later, he modified the technic by adding the posterior incision. The result of this was that it enabled him to make a shorter anterior incision, thereby lessening the danger of injury to the bladder during the delivery.

TECHNIC OF OPERATION.

A weighted speculum is introduced in the vagina to expose the cervix, which is brought down by means of double hooks placed on the anterior lip, one on either side of the cervical canal. If the cervix is not readily brought down by this method, as after an amputation, a No. 4 Voorhees bag is introduced in the uterus; it is filled with one per cent. lysol solution, and used as a tractor.

The lower limit of the bladder is found by introducing a male sound in the organ. the concavity of the sound pointing towards the operator: a transverse incision is made in the vagina just below the point of the sound, this incision is carried through the mucosa and fascia of the anterior vaginal wall. Sharp, pointed scissors are introduced under the vaginal wall and separate it from the bladder to within an inch of the urethra. The vaginal wall is then incised to the upper limit of the dissection, the bladder is separated from the vagina, and after cutting the uterovesical ligament from the uterus.

The bladder is now held out of the way by means of a retractor, and the anterior lip of the cervix is incised beyond the internal os. The posterior lip of the cervix is pulled upwards, towards the symphysis, with double hooks or the bag, as the case may be, and a transverse incision is made at the junction of the vagina and the cervix. The cul-de-sac and the rectum are reflected downwards, and the posterior lip is incised as far up as possible. Care being taken not to enter the peritoneal cavity.

The instruments are now removed and the hand is introduced in the uterus, an internal podalic version is performed in the usual way, and the placenta is extracted manually. By injecting pituitary extract or ergot, the bleeding is usually controlled so that packing is rarely necessary.

The cervical incisions are closed with No. 2 chromic catgut, interrupted; the vaginal incisions are sutured in the same manner with the same material.

When the fetus is small it is not necessary to incise the cervix posteriorly, as the anterior incision usually gives enough room for its extraction.

CASE 1. Mrs. R. M. Age 27. Para I. Indication—Rigid cervix at term. Confinement expected March 15, 1916. Operation March 29, 1916. Pelvic measurements normal.

On March 27, 1916, the patient was sent to St. Margaret's Hospital. She was having slight uterine contractions, but making no progress in dilatation; the cervix was very rigid.

Ether was administered and a No. 2 Voorhees bag introduced in the cervix at 6 P.M. At 8 P.M., the patient was having contractions, which lasted 30 to 45 seconds, every two minutes. At 8 A.M. the next morning (March 28, 1916), 14 hours after the introduction of the bag, the patient was still having contractions, but the cervix had not dilated and the bag was still in place; it was removed by letting out the fluid. The parturient was given, at this time, morphine sulphate gr. 1/6, and scopolamine hydrobromide gr. 1/200, s.c. At 3 P.M., the contractions had stopped, the temperature was 98.6, the fetal heart 140 and of good quality; at 8 P.M., the contractions were strong and regular; while at 10.30 P.M., despite the regular contractions, there was no progress noted; the fetal heart was still 140.

March 29, 1916, 2 A.M. Examination. The cervix admitted two fingers, but was not taken up and had not thinned out; manual dilatation was attempted but given up as the rigidity could not be overcome. The fetal heart had gone up to 160, and the mother's pulse to 120. After consultation, it was decided to deliver the parturient because of the rise of maternal and fetal pulse rates. The vaginal cesarean section was decided upon because of the roomy pelvis, and also because of the danger of infection due to the long labor with a bag, if the abdominal route were chosen.

March 29, 1916. *Vaginal cesarean section. Anterior and posterior incisions. Left episiotomy. Delivery of a male child with forceps. Manual extraction of the placenta. Puerperium.* The baby, which was etherized, was readily resuscitated by tubbing. The mother's pulse was weak and 160 at the end of operation. She was given salt solution by hypodermoclysis.

March 30, 1916. The mother is nursing her baby. Her temperature is normal, and her pulse is 108.

April 1, 1916. The baby died. Cause of death, intracranial hemorrhage, from long labor and forceps.

April 3, 1916. The episiotomy stitches were removed. The patient continues to improve.

April 11, 1916. An infection was noted in the episiotomy wound. The lower end of the incision was opened and drainage was established.

April 18, 1916. Daily dressings to the incision, which is healing fast.

April 29, 1916. The episiotomy wound was cleanly healed and the patient was discharged from the hospital.

April 29, 1916. Discharge Examination: The episiotomy wound is healed, as well as the cervical and vaginal incisions; the uterus, which is in first degree retroversion, has well involuted. There are no masses or areas of tenderness in the pelvis.

CASE 2. Mrs. E. M. Age 28. Para III. Indication—Toxemia of pregnancy, convulsive type. Seventh month of pregnancy. On January 23, 1918, the patient was admitted to St. Elizabeth's Hospital, after having had two convulsions. She was markedly toxic and irrational. The urine showed a large amount of albumin, while in the sediment a large number of casts were seen, the systolic blood-pressure was 170, and the edema was marked. The fetal heart, which was 140 in rate, was heard in the right lower quadrant. The cervix was long and rigid and the patient had had no labor. The family and past histories were irrelevant, while the previous obstetrical history revealed the fact that she had miscarried twice, in the third month of pregnancy.

January 23, 1918. *Vaginal cesarean section. Anterior and posterior incisions. Internal podalic version and breech extraction of a seven-months female child. Manual extraction of the placenta. Puerperium.*

January 24, 1918. The patient made a good ether recovery; she has had no further convulsions, her systolic blood-pressure is 140, and her edema is rapidly decreasing. The baby is doing well.

January 25, 1918. The patient is voiding normally and her blood-pressure is 134. The baby is being fed with a dropper.

January 28, 1918. Both mother and baby continue to improve.

February 2, 1918. The puerperium has been afebrile, the edema has disappeared, and there are no bladder symptoms. The baby is doing well.

February 4, 1918. Discharge Note: The vaginal incisions and the cervix are well healed, the uterus has involuted in good position. There are no masses or areas of tenderness in the pelvis.

This patient was readmitted to St. Elizabeth's Hospital on May 8, 1920. The examination showed a pregnancy at term, with a vertex presenting in L. O. A. At the onset of labor, the cervix was soft, and the scars in the

anterior and posterior lips could not be felt. It was decided to give the patient the test of labor. She dilated readily and without the least difficulty, and was delivered normally of a male child. There was a slight second degree laceration of the perineum, which was repaired at the end of the third stage.

Examination at the time of discharge revealed a small laceration of the cervix antero-posteriorly. The uterus was well involuted and in good position, and the adnexa were normal. The perineum was healed and gave good support.

CASE 3. Mrs. C. O. Age 24. Para I. Indications—Rigid cervix. Attempted delivery through an undilated cervix. Prematurity, six months. Dead fetus.

May 17, 1918. The patient, who was six months pregnant, had been in labor twenty-four hours when admitted to St. Elizabeth's Hospital. She had been etherized twice and attempts at delivery had been made outside. On admission, one leg was protruding through the vulva. Her family physician stated he had attempted to deliver her because of uterine bleeding.

The parturient was prepared for a vaginal delivery and etherized for the third time. The protruding leg showed dislocation of the knee and ankle joints, the cervix had contracted on the leg, and the uterus was tonic; it was impossible to introduce a finger in the cervix since it had so firmly shut down on the leg. No sign of bleeding was noticed.

March 17, 1918. *Vaginal cesarean section. Anterior incision. Breech extraction of a still-born male fetus. Manual extraction of the placenta, which was not detached nor implanted in the lower uterine segment. Puerperium.*

May 20, 1918. The highest temperature has been 100 and the highest pulse 120; the temperature is now normal and the pulse 80. The patient has voided normally since the operation and the bowels have functioned normally. The convalescence has been satisfactory.

May 24, 1918. The temperature and pulse are normal. The patient has no discomforts.

May 30, 1918. Discharge Note: The cervix and anterior vaginal wall are well healed, the uterus has involuted in good position; the adnexa are normal, and there is no pelvic tenderness.

CASE 4. Mrs. D. O. Age 18. Para II. Indications—Pyelitis. Kinked right ureter. Seventh month of pregnancy.

The patient was admitted to St. Elizabeth's Hospital on June 7, 1918. She had had a normal delivery at term nineteen months previously. She was pregnant for the second time at the middle of the seventh month. For a week she had been confined to bed with excruciating pain over her right kidney. On ad-

mission to the hospital, her temperature was 104, pulse 140, and respirations 20.

The examination made at 4 P.M. showed the right kidney to be exquisitely tender, and the catheterized specimen of urine showed a large amount of pus and an occasional red blood corpuscle. At midnight, eight hours later, the patient's condition was worse and after consultation, it was decided to induce labor to relieve the pressure on the right ureter. With this end in view, the patient was etherized and a No. 4 Voorhees bag introduced in the cervix.

June 8, 1918. The bag had been in the cervix eight hours, the patient had had strong labor, but this had had no effect as far as dilatation was concerned.

June 8, 1918. Vaginal cesarean section. Anterior and posterior incisions over Voorhees bag. Internal podalic version and breech extraction of a male child, which lived twenty-four hours. Manual extraction of the placenta. Puerperium.

June 9, 1918. The patient is markedly irrational. She has made a good ether recovery.

June 10, 1918. The mental condition has improved. The urine shows a large amount of pus. Hexamethylenamine and acid sodium phosphate $\bar{a}\bar{a}$ Gr. x. were prescribed.

June 13, 1918. The urine is still filled with pus, the pain over the right kidney has disappeared, the temperature and pulse are normal and the patient is rational.

June 16, 1918. The patient is allowed out of bed.

June 17, 1918. The improvement is continuous. There is no rise of temperature or pulse, and the urine is clearing up.

June 22, 1918. Discharge Note: The incisions in the vagina, as well as in the cervix, are well healed. The uterus is involuted in good position. There are no masses or areas of tenderness in the pelvis. The urine is clear and there is no tenderness in the region of the right kidney.

(March, 1920. The patient was delivered at term, in her home, by her family physician. The delivery was normal and there were no complications.)

CASE 5. Mrs. A. McK. Age 31. Para I. Indications—Macerated fetus at four months. Previous nephrectomy. Last catamenia, December 17, 1917. Confinement expected September 23, 1918. Past History—Twelve years previously, dilatation and curettage for dysmenorrhea at the New England Hospital for Women. Twelve years previously, appendectomy at the Homeopathic Hospital. Ten years previously, laparotomy for the removal of a left ovarian cyst at the Boston City Hospital. Five years previously, nephrectomy (right kidney) for pyonephrosis, at Albany, N. Y.

April 11, 1918. Examination showed the uterus to be the size of a four-months pregnancy. There was no fetal heart heard.

July 18, 1918. Amenorrhea still exists. There is no change in the size of the uterus, and no fetal heart sounds are heard. The patient is to report in a month.

August 13, 1918. The uterus has not changed in size. There has been no change in mensuration since April.

The patient was admitted to St. Elizabeth's Hospital. On August 22, 1918, she was etherized: the cervix was dilated so that it admitted one finger; the organ was very rigid and could not be dilated any further. The finger was introduced in the uterus and a soft, macerated fetus was felt. Since the patient had but one kidney, and in order to save her from a second etherization, it was decided to deliver her by vaginal cesarean section.

August 22, 1918. Vaginal cesarean section. Anterior and posterior incisions. Internal podalic version and breech extraction of a four-months macerated fetus. Manual extraction of the placenta. Puerperium.

August 23, 1918. The patient made a good ether recovery.

August 26, 1918. The patient is doing well. She is having house diet; she is voiding normally, and her bowels have resumed their normal function. The temperature is 99 and the pulse 100.

September 2, 1918. The temperature and pulse are normal and the patient makes no complaint.

September 7, 1918. The patient is discharged from the hospital.

October 9, 1918. Examination, at the office, showed the following results. The cervix is healed and there are no raw areas. The anterior and posterior incisions are healed, the uterus is in good position and movable. There are no masses or areas of tenderness in the pelvis.

On December 8, 1920, the patient had urinary suppression from a kink in her left and only ureter. The kidney was suspended and she has been free from symptoms since.

CASE 6. Mrs. E. S. Age 35. Para I. Indication—Toxemia of pregnancy, convulsive type. Seven and a half months of pregnancy.

The patient was seen at St. Elizabeth's Hospital on July 8, 1919. She had severe headaches, marked edema of the face and extremities, and a high blood-pressure. The urine showed a large trace of albumin and casts of all varieties. The vertex was presenting in R. O. P., the fetal heart sounds were heard in the right lower quadrant, and the pelvis was roomy.

The patient was treated expectantly by being kept in bed and on a strict milk diet. On August 2, 1919, at 3.30 P.M., the systolic blood-

pressure was 250; there was marked twitching of the muscles and an increase in the amount of albumin and renal elements. After consultation, it was decided to induce labor. At 4 P. M., the same day, the patient was given ether, and a No. 4 Voorhees bag was introduced in the cervix. At midnight, eight hours later, the bag had had no effect in starting labor. The parturient was again taken to the operating room and etherized.

August 3, 1919. Vaginal cesarean section. Anterior and posterior incisions over Voorhees bag. Internal podalic version and breech extraction of a seven and a half months stillborn female fetus. Manual extraction of the placenta. Puerperium.

August 3, 1919. The parturient had a convulsion at 6 A.M., and no other. Her pulse was 108 to 110, her temperature was normal, and there was still considerable edema of her extremities. She voided eighteen ounces of smoky urine, and catheterization was not necessary during any part of her convalescence. Magnesium sulphate, morphia, and heaters were prescribed.

August 14, 1919. The convalescence has been satisfactory. There has been no undue elevation of pulse or temperature. The patient has been allowed out of bed.

August 17, 1919. The urine still shows albumin and casts, although the blood-pressure is gradually coming down. The patient is advised to report to her family physician for further treatment.

January 23, 1920. Examination at the office shows the cervical and vaginal incisions well healed, the uterus normal in size and position, freely movable, and the adnexa normal. There are no masses or areas of tenderness in the pelvis. The blood-pressure is 160/100, and the patient is still on a non-protein diet.

CASE 7. Mrs. B. E. M. Age 30. Para I. Indications—Advanced pulmonary tuberculosis. Macerated fetus six and a half months.

The patient had been treated by her family physician, who had had several consultations. A diagnosis of advanced pulmonary tuberculosis had been made. She was seen at the Charlesgate Hospital, where she had been admitted on February 23, 1920.

The examination showed a six and a half months pregnancy and a long, rigid cervix. The fetal heart tones were not heard, and the patient had not felt life for some days. The consultants felt that because of her pulmonary condition she should be delivered at once. She was in a very poor physical condition. Her temperature was 102, and her pulse 140.

February 23, 1920. Vaginal cesarean section. Anterior and posterior incisions. Internal podalic version and breech extraction of a male, macerated fetus. Manual extraction of the placenta. Puerperium.

The patient had left the table with a pulse of 150. Surgically, the convalescence was uneventful. She ran an evening temperature, ranging from 101 to 100; the pulse gradually came down to 120, then to 100. The parturient voided normally throughout the puerperium, and the bowels were taken care of with enemata.

March 6, 1920. Discharge Note: The cervical and vaginal incisions are well healed, the uterus is involuted in good position, the adnexa are normal. There are no masses or areas of tenderness in the pelvis.

March 7, 1920. The patient was discharged to her family physician for further treatment of her pulmonary condition.

CASE 8. Mrs. A. C. Age 23. Para I. Indication—Toxemia of pregnancy, convulsive type. Seventh month of pregnancy.

The patient was admitted to St. Elizabeth's Hospital on June 7, 1920. She had then had seven convulsions. The examination revealed a seven-months pregnancy. The fetal heart was indistinct. There was marked edema of the face and extremities, and the systolic blood-pressure was 210. The urine, which was smoky, contained a very large trace of albumin, and the sediment showed fresh blood, as well as hyaline and granular casts. The patient was delivered at once because of the severe toxemia and the frequency of the convulsions.

June 7, 1920. Vaginal cesarean section. Anterior and posterior incisions. Internal podalic version and breech extraction of a female child which lived six hours. Manual extraction of the placenta. Puerperium.

June 8, 1920. The patient made a good ether recovery. She voided normally, and had a normal pulse and temperature.

June 10, 1920. The breasts are filling up. A tight breast binder and magnesium sulphate were ordered.

June 12, 1920. The convalescence has been satisfactory. There has been no elevation of pulse and temperature, and the systolic blood-pressure is 180.

June 19, 1920. The patient is doing well. She is allowed out of bed.

June 22, 1920. Discharge Note: The cervical and vaginal incisions are well healed. The uterus is involuted in good position. The adnexa are normal. There are no masses or areas of tenderness in the pelvis. The systolic blood-pressure is 120, and the urine contains a v.s.t. of albumin, but no casts are seen.

CASE 9. Mrs. E. B. Age 25. Para I. Indications—Toxemia of pregnancy, non-convulsive type. Abruptio placentae. Uterine hemorrhage. Seventh month of pregnancy.

On July 27, 1920, the patient, who was admitted to St. Elizabeth's Hospital, showed

marked edema of the face and extremities. There had been marked bleeding from the uterus for several hours. The pulse was 120, and the systolic blood-pressure 170. The urine showed a large trace of albumin, granular and hyaline casts, small round cells, and red blood corpuscles. The abdominal examination showed the uterus to be the size of a seven-months pregnancy, while the vaginal examination showed a long, primiparous cervix.

The patient was prepared for delivery at once, because of the premature separation of the placenta and the hemorrhage.

July 27, 1920. Vaginal cesarean section. Anterior and posterior incisions. Internal podalic version and breech extraction of a seven-months male, macerated fetus. Manual extraction of the placenta. Puerperium.

July 28, 1920. The patient made a good ether recovery and had a good night. She voided normally.

July 30, 1920. There is no bladder discomfort. The patient voids normally. The breasts are engorged; they are treated by the application of a tight binder and the administration of magnesium sulphate. The temperature and pulse are normal.

August 1, 1920. The improvement is gradual. There is no discomfort, except for the breasts, which are still moderately engorged.

August 8, 1920. The patient is allowed out of bed. She is very comfortable.

August 11, 1920. Discharge Note: The vaginal and cervical incisions are well healed. The uterus has involuted in good position. There are no masses or areas of tenderness in the pelvis.

CASE 10. Mrs. B. A. Age 37. Para I. Indication—Toxemia of pregnancy, non-convulsive type. Seventh month of pregnancy.

The patient was seen for her family physician at the office. She complained of headaches, swelling of her ankles and twitching of her muscles. The headaches had existed since the onset of pregnancy. At the time of consultation, her restlessness was marked.

The examination of the abdomen showed the uterus to be the size of a seven-months pregnancy. A vaginal examination was not made at this time. The blood-pressure was 230/150. The patient was sent from the office to the Carney Hospital, where she arrived at 6 P.M. August 16, 1920. She was put to bed, given hot packs, magnesium sulphate and morphine sulphate, to the physiological limit.

August 17, 1920. The patient had spent a poor night. She had slept but very little. Her blood-pressure was 250/160. The urine showed a large trace of albumin, hyaline and granular casts, and fresh blood. Because of the rise in blood-pressure, despite the fact that she was on active treatment, it was decided to deliver her immediately, and vaginal cesarean

section was elected as the operation of choice.

August 17, 1920. Vaginal cesarean section. Anterior and posterior incisions. Internal podalic version and breech extraction of a female child, who never took the initial breath, although the heart was beating at birth. Manual extraction of the placenta. Puerperium.

The patient made a good ether recovery. The blood-pressure remained high the first few days and then began to subside.

August 22, 1920. The patient has done well since operation. She has voided normally, and the bowels have functioned readily with the aid of magnesium sulphate. The urine shows less albumin and the renal elements are gradually disappearing from the sediment.

August 26, 1920. The patient has continued to improve. A head-rest was ordered.

August 28, 1920. The patient was ordered out of bed. Examination of the urine showed a rare hyaline cast; otherwise, it was negative.

September 1, 1920. Discharge Note: The cervical and vaginal incisions are well healed. The uterus has involuted in good position. There are no masses or areas of tenderness in the pelvis.

The patient was discharged to her family physician for further observation.

CASE 11. Mrs. M. M. Age 41. Para II. Indication—Toxemia of pregnancy, non-convulsive type. Seventh month of pregnancy. The past history was negative, except for the fact that the patient had had a miscarriage at three months, in 1919.

On January 31, 1921, the patient was seen at the office. She complained of severe headaches and swelling of her ankles. She was then seven months pregnant. Examination revealed marked edema of the hands and ankles, chemosis of the eyeball, and a blood-pressure of 190/100. She was sent to the Carney Hospital, where she was admitted in the late afternoon. At 11 o'clock the same evening, she was again seen. The blood-pressure was then 198/108, and the patient had become totally blind shortly after her admission to the hospital. Because of the severe toxemia and the long, rigid cervix, it was decided to deliver her by vaginal cesarean section.

February 1, 1921. Vaginal cesarean section. Anterior and posterior incisions. Internal podalic version and breech extraction of a seven-months, stillborn, female child. Manual extraction of the placenta. Right episiotomy. Puerperium.

February 2, 1921. The patient made a good ether recovery. She still complains of severe headaches, and is still blind.

February 4, 1921. The patient's convalescence is surgically satisfactory. The headaches are still troublesome, although the vision is improving. She is now able to discern large objects. The blood-pressure still remains high.

February 7, 1921. There is a marked general improvement. The headaches have disappeared and she has completely recovered from the blindness.

February 11, 1921. The patient feels well. She is sitting up in bed, enjoys a protein-free diet, and makes no complaints.

February 13, 1921. The patient is allowed to sit in a chair. She has apparently completely recovered.

February 17, 1921. Discharge Note: The episiotomy wound is healed. The cervical and vaginal incisions are healed. The uterus has involuted in good position. There are no masses or areas of tenderness in the pelvis. The urine still shows a trace of albumin, but no casts are found.

The urine examination was negative one month after her discharge from the hospital.

CASE 12. Mrs. Z. B. Age 42. Para IV. Indications—Previous amputation of the cervix. Toxemia of pregnancy, non-convulsive type. Inevitable miscarriage at 5½ months. Past History—The patient had had two previous operations, the first consisting of a dilatation and curettage, with an abdominal suspension, and the second, of an amputation of the cervix, an anterior colporrhaphy and a colpoperineorrhaphy. The previous obstetric history was irrelevant.

The patient was admitted, in labor, to the Carney Hospital on March 22, 1921. She was then 5½ months pregnant. She had been bleeding for 48 hours. The cervix was dilated to admit one finger. The membranes were ruptured, and the fetal heart sounds were not heard. The blood-pressure, on entrance, was 200/95, and the urine examination showed the following: sp.g. 1015, sugar absent, albumin s.p.t., sediment, considerable pus, few red blood corpuscles, a number of very granular renal cells, and a rare, fine granular cast.

The contractions persisted regularly, but because she made no progress with them, she was etherized, and a No. 4 Voorhees bag inserted. This was allowed to remain in position twelve hours, at which time there was no further dilatation. It was then decided to deliver the patient by vaginal cesarean section.

March 23, 1921. *Vaginal cesarean section. Anterior incision. Internal podalic version and breech extraction of a 5½-months, macerated fetus. Manual extraction of the placenta. Puerperium.*

The patient made an uneventful recovery. The temperature and pulse remained within normal limits. She had no bladder symptoms, and was comfortable during the entire convalescence.

April 8, 1921. Discharge Note: The cervix and the anterior wall are well healed. There is no bulging of the walls. The uterus is well involuted and in excellent position. It is freely

movable. There are no masses or areas of tenderness in the pelvis. The blood-pressure is 135/80, and the urine is negative, except for a rare hyaline cast.

CONCLUSIONS.

1. Vaginal cesarean section is an ideal operation when an indication for immediate delivery arises in a patient with a long, rigid, undilated cervix, up to the eighth month of pregnancy.

2. The operation may be done at term, as shown by Case No. 1 of this series; but here the difficulties are greater, and there is danger of the incisions tearing in the peritoneal cavity because of the large size of the child.

3. There are remarkably few bladder symptoms, considering the fact that this organ has to be separated from the anterior vaginal wall as well as from the uterus.

4. Since the operation is extraperitoneal, post-operative distention is a negligible factor.

5. The puerperium, as a whole, resembles that of any operative pelvic delivery.

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Medical Progress.

PROGRESS IN PEDIATRICS.

BY JOHN LOVETT MORSE, M.D., BOSTON.

A SUMMARY OF THE LITERATURE OF THE LAST FEW YEARS ON RICKETS.

UP to a few years ago little more was known about the etiology of rickets than was known when it was first described many years ago. Advance began to be made about five years ago, and during the last two years much has been learned about it, although the matter is not by any means as yet settled. Much of this advance has been due to better chemical methods, and more to the attention called by Howland and Park¹ to the fact that a definite correlation exists between the Roentgen ray signs and the actual pathological conditions in the bones.

Findlay², in a report of the Medical Research Committee of the English National Health Insurance Council in 1918, after giving a fairly complete historical review of the subject, came to certain conclusions, of which the following seem the most important: rickets generally develops in late

winter and spring; the age at which artificial feeding is commenced seems to be of little moment; a defective supply of fat cannot be considered as playing an essential part in the causation of rickets; the evidence is against the fat-soluble A being a determining factor; the social conditions of the rachitic family are not as good as of the non-rachitic; the average number of persons per room is greater, the air space 32% less and the house more dirty in the rachitic families. That is, he believed that the frequency of rickets varied with the housing conditions. This point of view represented fairly well the general belief at that time.

FAT-SOLUBLE A AND ANTIRACHITIC VITAMIN.

Mellanby³, in 1919, fed puppies on various diets which always brought on rickets. He found that the addition of yeast and orange juice to the diet did not prevent its development. Meat and extracts of meat had an inhibitory action, apparently largely because of the extractives which they contain. The addition of fats prevented its development. In order of value they were cod liver oil, butter, animal fat and vegetable fat. He concluded that rickets was a deficiency disease which develops in consequence of the absence of some accessory food factor or factors. The antiscorbutic and water-soluble B can be excluded. Therefore, it must be due to the lack of an antirachitic factor, which is either the fat-soluble A, or one which has a somewhat similar distribution.

He found, as has been proved many times since, that rickets develops more quickly in rapidly than in slowly growing animals. He admits that this association is rather against A as the cause, as A is essential for growth. His explanation is that only a small amount of A is necessary to promote growth, but considerably more is required to insure correct growth. He explains the action of protein in preventing rickets by its stimulating action on the metabolism and the consequently better utilization of A. He showed that both human and animal milk might be deficient in A, if the food was deficient in it.

In a later paper⁴, he stated that vegetable oils contain more or less antirachitic factors, although experiments on rats seem to show that A is absent. He criticised Hess and Unger for their conclusions on giving cottonseed oil and said that the high protein in their diets would tend to prevent rickets.

The Accessory Food Factors Committee of the Medical Research Council of Great Britain accepted Mellanby's conclusions and reported⁵, that rickets was a deficiency disease due to the lack in the diet of substances rich in an antirachitic factor and containing an excess of those deficient in this factor.

Mellanby's conclusions did not go unchallenged and were the cause of much experi-

mental work in England and this country. Paton, Findlay and Watson⁶ had already found that puppies sent to the country did not develop rickets, even when given skimmed milk, while puppies kept in the laboratory did develop it, whether confined or running about. They also found that puppies that were kept in the laboratory, whether confined or not, developed rickets, even if they were given butter. The most marked case was in one that took butter. They concluded that some other factor than diet is the prime cause of rickets and that there is no evidence that milk-fat contains any accessory factor which protects against the development of rickets.

Hess and Unger⁷, in order to provide an adequate amount of the fat-soluble vitamins, placed a number of infants during the first months of their lives on large amounts of milk, in some instances giving cream in addition. If the fat-soluble vitamin was the controlling influence, rickets should have been prevented. Various degrees of rickets developed, although the babies did not show signs of indigestion. They conclude that these results apparently show that the lack of the fat-soluble vitamin is not the cause of rickets. They admit that their conclusion may be criticised on the ground that the milk was deficient in the fat-soluble vitamin, because of a lack of it in the fodder given to the cows. They admit that rickets is less severe in the summer, but say that this does not prove that the presence of more fat-soluble vitamin is the cause of the improvement. This would not account for the large number of babies that develop rickets while taking an abundance of milk, or for the breast-fed babies who develop the disease while the mother is taking an abundance of the fat-soluble factor.

They also put five infants between four and nine months of age on a dietary, complete in every respect, except for a lack of fat-soluble vitamin, and kept them on this diet for from five to nine months. These babies showed no greater signs of rickets than the average baby in the institution, which, they believe, shows that this vitamin is not the much-sought-for antirachitic factor.

Paton and Watson⁸ then undertook another series of investigations on puppies, and found that under ordinary laboratory conditions a liberal allowance of milk-fat, 14 grams per kilo, neither prevented the onset of rickets nor cured it when it had developed. They also found that pups kept largely in the open might escape rickets on an intake of milk-fat as low as one gram per kilo. They also found that pups could be reared in the laboratory, if scrupulous care as to cleanliness was exercised, without developing rickets on 0.5 gram per kilo, if the energy value of the diet was normal. They found that if lard, which is supposed to lack the fat-soluble

A, was given in place of milk-fat, rickets did not develop.

Mackay⁹ conducted a short series of rather inconclusive experiments on kittens that were given a diet deficient in fat-soluble A. Tozer found no changes of rickets in the bones of these animals.

McCollum, Simmonds and Parsons¹⁰ constructed a number of diets which produced rickets or other bony changes in rats. These diets were deficient in some particular or other and could be made to produce normal growth, if this deficiency was made up. This was merely a preliminary communication and they did not dare to draw any positive conclusions as to the absence of a specific antirachitic substance or a deficiency of either fat-soluble A or calcium as the primary agent in the causation of rickets. They say, however, that "at present it is only possible to say that the etiological factor is to be found in an improper dietetic regimen."

Shipley and Park¹¹, in a series of experiments on rats, found that a deficiency of fat-soluble A alone did not produce the bony changes of rickets, while one deficient in both fat-soluble A and the phosphate ion did produce it. They conclude that a deficiency in fat-soluble A cannot be the sole cause of rickets, but think that the fat-soluble A may determine in part the level of the blood phosphate and thus play a part in the development of rickets.

Hess, McCann and Pappenheimer¹² fed rats on a complete ration, including yeast and orange juice, except for an almost total lack of the fat-soluble A. A control series which was given the same diet, with enough butter fat to make it complete, grew well and did not develop keratitis. The first series ceased to grow, developed keratitis and died prematurely. There were no gross evidences of rickets. Microscopic examination of the bones of 22 rats showed definite signs of a lack of active osteogenesis, but in no instance lesions resembling rickets. They conclude that the fat-soluble A cannot be regarded as the antirachitic vitamin. If the diet is otherwise adequate, its deficiency does not bring about rickets.

SEASONAL VARIATION, ULTRAVIOLET RAYS AND SUNLIGHT.

Hess¹³, early in 1921, emphasized the seasonal incidence of rickets, calling attention to the increased incidence and intensity in the spring, and its tendency to fall to the lowest level in late summer and autumn. In the Home for Hebrew Infants, of which he has charge, rickets almost disappears in August and September.

Hess and Unger¹⁴ state that there are two possible explanations for the increase of rickets during the winter and early spring, and its decrease during the summer months, namely,

change in climate and alteration in the food. In order to determine whether rickets is due to some difference between the milk of winter and of summer, they fed some babies on dried summer milk and some on the dried milk of stall-fed cows. There was no difference in the incidence of rickets in the two series, showing that it is not due to differences between winter and summer milk. Incidentally their investigation shows that dried milk, *per se*, does not cause rickets.

In 1917 they made the first attempt to cure rickets by means of the ultraviolet rays, on the basis that if "season" was to be interpreted as a climatic influence, in which the sun plays an important rôle, artificial actinic rays might bring about a similar effect. Their results were inconclusive, but were not checked by the Roentgen ray.

Huldschinsky,¹⁵ in 1920, reported favorable results with these rays, but as he also gave calcium phosphate and cod liver oil, his results are inconclusive. Hess and Unger¹⁴ again used the ultraviolet ray therapy and checked their results with the Roentgen ray. They exposed the entire body, at first for three minutes and later for twenty minutes, three times a week, for two months, in six babies, putting the lamp 120 cm. from the body at first, and finally 75 cm. roentgenograms showed definite improvement in all cases, that is, a definite deposition of salts at the epiphyseal ends of the bones. No changes were made in the diet and the treatment was given in February and March. They believed that the effect was systemic and not merely the result of a local action on the epiphyseal ends of the bones.

They state that these results elucidate the seasonal variation of rickets, explain why rickets preponderates in large cities, where the infants are closely housed during the winter, and emphasize the importance of sunlight in comparison with fresh air and exercise. They suggest that the marked incidence of rickets in negroes may be due to the color of their skin, which interferes with the penetration of short actinic rays.

Putzig¹⁶ corroborated Huldschinsky's results in premature infants, and Riedel¹⁷ also treated 100 children with good results.

Erlacher¹⁸ gave 42 children with rickets from 40 to 60 daily treatments, some as long as 15 minutes, with the ultraviolet rays. There was no medicine given and no change made in the diet or life of the babies. Clinical improvement was evident in from four to six weeks. Roentgenograms showed definite ossification. The bones became harder and stronger, and improvement went on to complete healing. He concluded that the action must be a general one, because improvement occurred in the same way in bones which were not exposed.

Hess, Unger, and Pappenheimer¹⁹ placed rats

on a diet which invariably caused rickets. One set was kept in absolute darkness, another was taken out and exposed to direct sunlight 15 to 30 minutes, four or five days a week. The diet was the same in both groups. They were x-rayed after three weeks and killed and autopsied after from 30 to 40 days. The rats exposed to the sun did not show any signs of rickets. This was the first time that rats on this diet, even though kept in the well-lighted laboratory, had not shown it. They also found that it was possible to prevent the development of rickets on this diet by the addition of potassium phosphate.

Shipley, Park, Powers, McCollum and Simmonds²⁰ put 18 rats on a rachitic diet. Twelve were exposed to sunlight from 20 minutes to six hours, for from 62 to 67 days. The average exposure was four hours a day, and the total from 242 to 273 hours. Six were kept in an ordinary room with glass windows. The rats which were exposed to sunlight did not develop rickets. The rats that were kept in did. Their results were proved by autopsies and microscopic examinations. Incidentally, their results, as well as those of Hess, Unger and Pappenheimer, show that ordinary window glass prevents the curative and preventive action of sunlight on rickets.

They found that the changes produced in the skeleton by sunlight did not differ in any important respect in either time or character from those produced by cod liver oil. They state that "Both contain something which is essential for optimal cellular function." "They permit the organism to put into operation adaptations or defense mechanisms, which otherwise would have been ineffectual. Neither cod liver oil nor light meets the defects in the composition of the diet by supplying to the body either calcium or phosphorus, but meets them indirectly by so raising the potential of cellular activity as to secure the most efficient utilization possible of those substances available in the body which are directly or indirectly concerned with ossification and calcification."

Hess and Unger²¹, encouraged by their results with the ultraviolet ray, attempted to attain similar results by the direct action of the sun's rays. They exposed, in turn, the legs, arms, trunk and face of five infants, from six to eighteen months of age, for from one-half hour to several hours daily, weather permitting. There was a marked improvement in every case, as evidenced by the calcification of the epiphyses, noted by means of the Roentgen ray. The alterations resembled those seen after the administration of cod liver oil. In one case they were evident in 13 days. In one case improvement was shown in both wrists, although but one arm had been exposed. The action of sunlight must be, therefore, systemic, not local. The general condition of the

babies also improved. The diet was not altered during the treatment. They conclude²² that the seasonal incidence of rickets is due to the seasonal variation of sunlight, and that sunlight should be used both to prevent and to cure infantile rickets.

Hess and Gutman²³ found that rickets could be either prevented or brought about according to whether animals were subjected for a short period to the sun's rays or at all times kept in the dark. They believe that the ultraviolet rays play a large rôle in the curative power of the sun. They state that Howland and Kramer³¹ have found that the serum of infants with active rickets contains a diminished amount of inorganic phosphate and that during the progress of healing, following the administration of cod liver oil, the phosphate content gradually rises to the normal level. They exposed seven infants with rickets to direct sunlight from one-half to several hours daily, sometimes exposing only the arms and legs, at others the trunk also. The diet was unchanged. They did not trust entirely to the Roentgen rays to demonstrate the improvement which took place, as babies may have clinical signs of rickets and a low inorganic phosphate of the blood with normal bony contours of the wrists and elsewhere. The inorganic phosphate of the blood increased from month to month and gradually reached the normal level of about 4 milligrams, that is, the results obtained were similar to those with cod liver oil.

METABOLISM AND CHEMISTRY OF RICKETS. CALCIUM AND PHOSPHORUS.

Mayer²⁴ found that the calcium content of the serum is constant in healthy infants, varying slightly with the individual infant. It is uninfluenced by food or age. Its height is almost the same as in adults, averaging 11.25 mg. per 100 c.cm. of serum. In the acute stage of rickets this is slightly or much increased; in the course of convalescence it sinks quickly far below normal and then gradually returns to normal. This change takes place very quickly under treatment with the ultraviolet rays, more quickly than when calcium phosphate and cod liver oil are given.

Findlay, Paton and Sharpe²⁵ found, as was known before, that "Changes in bones, simulating somewhat those in rickets, can be caused by feeding on a calcium low diet, but the condition is one of osteoporosis and not true rickets. The tissues other than bone, in experimental rickets in dogs, are not deficient in calcium. The calcium content of the blood shows no divergence from the normal. No support is given to the view that rickets is due to a deficient supply of calcium to the bones."

Grosser²⁶ made a metabolic study of 10 infants injected parenterally with different calcium and phosphorus compounds on comparable diets, to learn which of the calcium salts are

most readily assimilated by the child with a tendency to rickets. He did not draw any general conclusions.

Phemister²⁷ studied the action of phosphorus on the growth of bone in various conditions, including rickets, and reviewed the literature. Phemister, Miller and Bonar²⁸ did some experimental work on animals. They then studied a few children with rickets with the aid of the Roentgen ray, giving cod liver oil and phosphorus to some and phosphorus alone to others. Improvement was as rapid in the cases in which phosphorus was given alone as when it was combined with cod liver oil. They state that their results suggest that phosphorus may be as efficient as cod liver oil. They do not think that the trace of phosphorus which is present in cod liver oil is sufficient to exert any influence. The improvement, when phosphorus was given, could not be due to fat-soluble A. They do not attempt to explain the action of phosphorus.

Shipley and Park³² fed one series of rats on a diet deficient in both fat-soluble A and phosphorus, and another series on one entirely deficient in fat-soluble A. The latter group developed no bony changes resembling rickets. Many of the first group developed changes resembling those in human rickets. These results suggested to them that "the phosphate ion may be a determining influence for or against the development of rickets." Their results show that "if the phosphate ion is sufficiently high, a deficiency of fat-soluble A cannot cause ricket-like changes in the skeleton." They think that the fat-soluble A may determine, in part, the level of the blood phosphate and thus play a part in the development of rickets.

Sherman and Pappenheimer²⁹ produced rickets in rats by a diet very deficient in many ways, especially in fat-soluble A. The addition of 0.4% of potassium phosphate prevented the development of rickets.

McCollum, Simmonds, Shipley and Park³⁰ fed rats on a ration deficient in phosphorus and fat-soluble A but containing the optimal amount of calcium. These rats lost weight and had xerophthalmia. Changes of rickets were found both in gross and microscopically in all. Rats were fed on the same ration with a small amount of butter in place of dextrin. This supplied some fat-soluble A, but not enough to prevent xerophthalmia. These rats lived longer and showed more marked evidence of rickets. Another series of rats were fed on a ration low in phosphates and fat-soluble A, but with twice the optimal amount of calcium. They gained slowly or not at all, and did not develop xerophthalmia, but showed extreme rachitic changes. The rats in the second group probably showed more rickets because they lived longer. They think the greater degree of rickets in the third group was due to the higher calcium-phosphate ratio. They

conclude that, "Apparently . . . in rats, rickets may be produced by disturbances in the diet of the optimal ratio between calcium and phosphorus in the absence of an amount of an organic substance contained in cod liver oil sufficient to prevent it." "The physiological relation in the diet between the two is of . . . greater importance than the absolute amount of the salts themselves."

Howland and Kramer³¹ state that rickets is a disease characterized by a deficient deposition of calcium salts in the bones themselves and in the intercellular cartilage of the epiphyses. Inasmuch as the salts of the bones consist preponderantly of calcium phosphate, it would appear likely that the concentration of calcium and phosphate in the circulating medium must play an important part in the determination of precipitation. Their experience, based on more than 2000 determinations, leads them to the following conclusions: The calcium content of the serum in the human is singularly constant, being slightly higher in children, namely, 10 to 11 milligrams. There is a striking diminution in two diseases, tetany and nephritis. There is no demonstrable amount of calcium in the red cells. They call attention, however, to the fact that others differ from them on this point. They determined only the inorganic phosphorus of the serum. This represents the orthophosphate content of the serum, the only form of phosphate which can react with calcium to form tertiary calcium phosphate, which equals 85 to 90% of the salts of bone. The average in non-rachitic babies is 5.4 milligrams per 100 cc. of serum.

The diagnosis of rickets made on clinical grounds was supported by roentgenograms in twenty-two cases. The phosphorus varied from 0.6 to 3.2 milligrams per 100 cc., with an average of 2.0 milligrams less than 50% of normal. The calcium was within normal limits in twelve of twenty-five cases. In the others it was but little diminished and probably because of tetany. They say that a deficiency of calcium in the serum cannot, therefore, be looked upon as the primary reason for the failure of calcium deposit. Under treatment with cod liver oil the phosphorus rose to normal limits, and healing of the bones took place. They state that "In rickets we believe, therefore, that there is a marked and, for the causation of the pathological lesion, an important deficiency in inorganic phosphorus. To this deficiency is to be ascribed the failure of calcium deposition." They state that the ratio of the concentration of calcium to that of phosphorus in the serum of non-rachitic infants is practically the same as in tricalcium phosphate, which makes up nine-tenths of the salts of bone. A diminution in phosphorus would, therefore, render difficult the precipitation of this salt. The calcium salts in blood are in nearly saturated solution. No increase in the blood content of

calcium can, therefore, be brought about by feeding calcium salts.

COD LIVER OIL.

Shipley and Park³² fed eight rats on a diet very low in fat-soluble A, and seven on one low, not only in A, but in calcium, sodium and chlorine ions. Both of these diets are known to make the epiphyseal cartilages and adjacent portions of the metaphyses calcium free. When the rats on the first diet began to develop xerophthalmia, cod liver oil was given in place of part of the dextrin of the diet to four of them for two, four, seven, and eight days respectively. The other four were given no oil and were kept as controls. Cod liver oil was added to the diet of three of those on the second diet, 1% replacing 1% of maize, for three, five, and five days respectively. The other four were kept on the diet as controls.

The cartilages of the controls were free from calcium. There was a deposition of calcium, as shown by the microscope, in three of the second set, and in all of the first set that were given cod liver oil. They consider that their results admit the following generalizations: "When the cartilage has become free from lime salts as the result of the deficient diets, the addition of cod liver oil to the food for a period of from two to seven days is followed by the deposition of lime salts between the cells of the proliferative zone of cartilage." They give further data to show that the process is like that of healing in rachitic bones.

Park and Howland³³ studied fifty cases of rickets in children that were kept in the hospital without change in the diet. After treatment with cod liver oil changes were detected in the bones by radiograms about the end of the third or fourth week, or a little before. The deposition of salts occurred sooner in cases in which the disease was just entering the stage of repair. So much infiltration of salts took place in two or three months that the extremities of the bones, except for deformities, appeared normal. They say, "We look upon cod liver oil as a specific for rickets." "We have not seen it fail in any single instance and we have known it to cure the rickets even though the children were dying of some other disease."

COMMENT.

In spite of all the investigations detailed above as to the etiology of rickets, very little knowledge of practical value for everyday use has been gained, although the outlook for the final solution of the problem is far brighter on account of this work than it was before. It has apparently been proved, as was previously supposed, that rickets is not due to a deficiency of calcium and that it is useless, therefore, to give calcium salts in the treatment of this disease. It seems evident that rickets may de-

velop as the result of poor environment or of some defect in the food, that is, there is a basis for both of the divergent views which have been so long held as to its origin. Lack of sunlight is apparently the most important, if not the only element, in poor environment. The etiological defect in the diet is apparently neither an excess nor a deficiency of any one of the food elements,—fat, carbohydrates, or protein. It is evidently not a lack of vitamin A, but it is possible that there may be some relation between this vitamin and the real cause. A deficiency of phosphorus or an abnormal relation between the phosphorus and calcium may, perhaps, be the cause. It seems more probable, however, that the cause may be a deficiency of some unknown factor or factors, which stimulate or regulate the metabolic processes especially concerned with the salts of calcium and phosphorus.

These recent investigations have shown that there is a real basis for the empirical teachings of the past that out-of-doors, phosphorus and cod liver oil were of use in the treatment of rickets. They leave us somewhat in the dark, however, as to how to prevent it. It would seem, sunlight being beneficial only when it strikes directly on the body, as if it was not sufficient to keep babies in airy, sunny houses, but that their naked bodies must be wholly or partly exposed to the sun's rays. It will be rather difficult to persuade the average mother to do this regularly in the winter as a preventive, although she will probably do it gladly as a curative measure. These investigations show us little or nothing as to how a baby should be fed to prevent the appearance of rickets. It still seems safe, however, to follow the old teachings that human milk is the best food for babies, and, next to it, some modification of cow's milk. It may be that the time will come when all babies will be given cod liver oil as a preventive. It seems evident, at any rate, that cod liver oil will cure rickets. As it is the easiest and simplest method, it would seem to be the one of election. Phosphorus also seems to have a definite curative action. Phosphorus is, however, a dangerous drug and the limits of its dosage narrow. It is, therefore, inferior to cod liver oil for ordinary use.

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New England Health Institute.

Under the auspices of United States Public Health Service; Connecticut State Department of Health, Maine State Department of Health, Massachusetts Department of Public Health, New Hampshire State Board of Health, Rhode Island State Board of Health, Vermont State Board of Health, Yale Medical School, Harvard Medical School.

Director: John T. Black, M.D., Hartford, Conn.

The largest and most comprehensive Health Institute ever arranged for New England will be held in Hartford, Conn., May 1-6, 1922. This Institute has been prepared under the direction of the State Boards of Health of New England, Yale and Harvard Medical Schools and the United States Public Health Service.

This meeting will not be a convention but rather, as the name implies, a school of public health. Every effort will be made to present health problems in such a manner that the information given can be practically applied.

SCHEDULE OF COURSES.

1. Health Administration, Professor C.-E. A. Winslow, chairman. Nine lectures.
2. Preventable Diseases, Professor M. J. Rosenau, chairman. Nine lectures.
3. Sanitation, James A. Newlands, chairman. Nine lectures.
4. Tuberculosis, Dr. Stephen J. Maher, chairman. Five lectures.
5. Venereal Diseases, Dr. Howard A. Streeter, chairman. Eight lectures.
6. Child Hygiene, Dr. Merrill E. Champion, chairman. Nine lectures.
7. Public Health Nursing, Anne H. Strong, chairman. Eight lectures.
8. Social Work, Dr. Valeria H. Parker, chairman. Seven lectures.
9. Mental Hygiene, Dr. Paul Waterman, chairman. Four lectures.
10. Industrial Hygiene and Accident Prevention, Dr. George E. Tucker. Seven lectures.
11. Foods and Food Control, Hermann C. Lythgoe, chairman. Eight lectures.
12. Nutrition, Dr. Fritz B. Talbot, chairman. Four lectures.

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 Captain William Young, Health Officer, Springfield, Mass.

The headquarters of the Institute and the lecture halls will be in the Hotel Bond, 320 Asylum street, Hartford. Any person engaged in or interested in health work may take such courses or individual lectures as he may select. A certificate will be given to those who attend at least two complete courses or a total of twenty selected lectures. All lectures and courses are given without fee and no registration charge is made. The only charge of the week will be a cover charge for Thursday evening. Lecture hours will be from 10 A. M. to 12 o'clock noon, and from 3 P. M. to 5 P. M. daily, except Saturday, which will be devoted to field work. Forty-five minutes of each hour will be devoted to the lecture, ten minutes to questions and five minutes to assembling. Seats will be reserved for those who

register for regular courses. Bulletins will be issued from time to time, supplying information as to hotels, train schedules, road conditions and other matters of interest. Registrations should be filed as early as possible, but not later than April 15. For registration and information concerning the Institute, address John T. Black, M.D., State Commissioner of Health, Hartford, Conn.

THE MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

REPORTED WEEK ENDING MARCH 25, 1922.

Disease	Cases	Disease	Cases
Anterior poliomyelitis	4	Mumps	98
Chicken-pox	111	Ophthalmia neonatorum	26
Diphtheria	158	Pneumonia, lobar....	150
Dog-bite requiring anti-rabic treatment.	2	Scarlet fever.....	214
Encephalitis lethargica	7	Septic sore throat...	3
Epidemic cerebrospinal meningitis.....	2	Syphilis	43
German measles.....	9	Suppurative conjunctivitis	13
Gonorrhea	96	Tuberculosis, pulmonary	143
Influenza	190	Tuberculosis, other forms	16
Measles	595	Typhoid	8
		Whooping-cough ...	129

REPORTED WEEK ENDING APRIL 1, 1922.

Disease	Cases	Diseases	Cases
Anterior poliomyelitis	2	Ophthalmia neonatorum	16
Chicken-pox	102	Pneumonia, lobar....	154
Diphtheria	143	Scarlet fever.....	201
Dog-bite	1	Septic sore throat...	4
Encephalitis lethargica	5	Syphilis	51
Epidemic cerebrospinal meningitis.....	3	Suppurative conjunctivitis	9
German measles.....	17	Trachoma	2
Gonorrhea	81	Tuberculosis, pulmonary	155
Influenza	96	Tuberculosis, other forms	23
Malaria	1	Typhoid fever.....	7
Measles	371	Whooping-cough ...	99
Mumps	102		

RETURN OF THE TUBERCULOSIS PATIENT TO INDUSTRY.

DR. JOHN B. HAWES, 2d, President of the Boston Tuberculosis Association, has appointed a committee which will study the problem of finding occupations for the men and women who have had tuberculosis. The Association plans to obtain the services of a high-grade woman, whose duty it will be to get in touch with the patients before they are discharged, to find out their physical condition, their capacity for work, their former occupation, to get in touch with their former employer and to try to arrange it so that the man or woman in question can go back to his, or her, work gradually, starting with a few hours a day and working up to a full day's time. An attempt will likewise be made to get the cooperation of the leading manufacturers and employers of labor in this city and secure endorsement of this plan. The American Woolen Company has retained Dr. John B. Hawes, 2d, as consultant in dealing with the tuberculosis problem among the employees of that company.

THE BOSTON Medical and Surgical Journal

Established in 1828

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The Journal does not hold itself responsible for statements made by any contributor.

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DR. BARKER ON GROUP MEDICINE.

THE organization of medical men into groups for the practice of medicine has been steadily increasing in certain parts of this country. In New England very little has been done in this direction, unless it can be said that the large hospitals, with their numerous consultations between members of the Staffs, practise group medicine.

This experiment, for such it is, excites our interest; it will not be long, we predict, before such groups will be formed in Boston. Without doubt, group medicine has definite advantages, but these will be of no avail unless certain fundamental principles in the practice of medicine are kept clearly in mind. Three, at least, of these are essential: each case must be studied carefully and scientifically, and the knowledge so gained must be applied to the patient's advantage; the patient must have confidence in the physician who has the management of his case; the cost of the examination and of the treatment must not be excessive.

One might well ask whether any of these principles are carried out by the plan suggested by Dr. Lewellys Barker in his otherwise excellent article on "The Specialist and the General Practitioner in Relation to Team-work in Medical Practice," which appeared in the *Journal of the American Medical Association* of March

18, 1922. In discussing group medicine, Dr. Barker finds in it, as it is frequently practised, the danger that the results of examinations by various specialists will not be so co-ordinated that the right thing will be done for the patient. To prevent this unfortunate state of affairs, he suggests that groups should have "diagnostic integrators"—"men with more than ordinary endowment in what is called 'common sense,'"—who will digest, so to speak, the reports of specialists, and from them evolve a theory of treatment.

A chart presented by Dr. Barker shows the route which the patient of a group so equipped would follow. He would first be examined by an internist, who takes his history and gives him a general going-over. From there he would go to a "consulting diagnostician," who checks the main findings and decides what special examinations are needed. These examinations made, the reports are collected by a compiling secretary, who hands them to a "diagnostic summarizer." The latter rearranges the data on a single sheet and presents this evidence to the "diagnostic integrator" and the "therapeutic planner." These dignitaries (what else shall one call them?) may be one and the same man, or may be two individuals. At any rate, they, or he, constitute the final Court of Appeal; they exercise that "more than ordinary common sense" to which they owe their position, and having decided what shall be done for the patient, they turn him back for treatment to the general practitioner or to the appropriate specialist.

This is group medicine as advocated by Dr. Barker. We doubt if such an organization exists, or ever will exist. To use a phrase borrowed from "big business," the "overhead" would be too great. This plan, if put into effect, would create an organization so topheavy that it would capsize in the very first storm. Picture the bewilderment of the patient as he, or even more as she, is being ground up in this medical mill. There would be no chance for the development of any personal relations between doctor and patient, although Dr. Barker admits that personal relationships are exceedingly "important in medicine."

The whole group revolves around the "diagnostic integrator." The others need not think, for that is his job. Yet he will be too busy to do the thinking and to get that intimate point of view without which many cases cannot be properly diagnosed. The scheme would result in the development of a few vastly overworked diagnosticians, surrounded by a coterie of men who would be expert in some method of examination, but who would not be physicians in the true sense of the word.

The plan appears to us to be inhuman, unwieldy, extravagant. We vote for the present

system, in which responsibility is put squarely up to the man whom the patient selects for his physician. Every medical man should be able to tell what organ or what system of organs is chiefly involved. If he has not the facilities or the knowledge needed to investigate that particular portion of the body, let him select as a consultant that man in the community who can best help him, and not be confined in his choice to the members of a group. It may be that of several possible consultants, one is especially suited for one type of case, another for another.

The patient will then have a friend as well as a physician, to whom he may turn for advice. Is the mental side of medicine to be neglected altogether, or to be administered only by those who have studied Freud?

Let us not depart too far from the ideals set before us by Fitz. Osler, and by all of the great physicians who have made medicine what it is. The practice of medicine is still a profession and an art.

RURAL MEDICAL SERVICE.

THIS subject has engaged the attention of physicians, health authorities and writers in the daily press to a considerable extent. Opponents of requirements for higher standards of premedical education have argued most earnestly against any legal enactment of regulations relating to preparatory courses. The contention is made that higher standards would tend to reduce the number of physicians who might be inclined to settle in smaller towns, and the statement has been made that there is a scarcity of physicians.

There is abundant evidence that there is a dearth of physicians in small and remote towns, but the real reason for this shortage seems to have been overlooked, for it does not lie in an inadequate number of physicians. In this country there is, on the average, one physician to about eight hundred persons, but in England and Germany, for example, there are approximately half as many physicians in proportion to the population as are found on the average in the United States. The real reasons for inadequate medical service are probably economic and personal. The general trend of the times is for physicians to share in the common ambition for better living conditions and social advantages. An appreciable number of doctors who engaged in government service during the war, upon release from military duty, took occasion to seek more attractive fields, with the result that, in common with the younger graduates, attempts were made to develop practice in the larger towns or cities.

A few men have claimed that public health activities have reduced the demands for pro-

fessional service. This is certainly true to an extent, for it is perfectly well known that a generation or two ago the average country practitioner was employed in caring for more cases of typhoid fever and tuberculosis than is the case today. Typhoid fever is the vanishing disease, and consumption is less prevalent than it was. Many tuberculosis cases are cared for in sanatoria and are either cured or spend so much time in institutions that the long attendance by physicians is not so often required.

Some argue that the graduates of the low-grade medical schools would fill the needs of the small communities. This is probably not true to any extent, for the poorly equipped doctor can often succeed better in the large cities, for his antecedents and associations are not so well scrutinized by many in a city. To the uneducated citizen, a doctor's sign means only a doctor and, thanks to Nature's laws, many people recover from illness with or without a physician's attendance; but to some the recovery is evidence of skillful service. In a small community there are intelligent people who would soon know all about a physician's equipment, and if he should be unable to measure up to average standards, the fact would be common property in a short time. Sometimes the inefficient doctor who succeeds financially in small communities, is the one who adopts the customs of the pretenders and is able to deceive a part of the people for a part of the time.

Some of the objections to higher grade medical education have been presented by representatives of a cult on the plea that nothing should be done to reduce the number of doctors, but one seldom hears of an osteopath or chiropractor settling in a small town or striving to meet the needs of a community for a general practitioner.

Various suggestions of possible remedies have been published, but in the last analysis doctors will not find rural service attractive unless there is a reasonable guarantee of desirable living conditions and returns. In the changing conditions which affect medicine the education of the people plays an important part, for the general understanding of the skill of the specialist leads many in the remote towns to go more or less regularly to cities for expert opinions and service. This custom also depletes the income of the local doctor.

But, after all, the honest, resourceful physician will often build up a fairly good living in smaller places if he has the physique to withstand the strain of hard work and irregular hours, but he must not be too modest nor belittle his ability to meet the competition of others. It has been said that one of the reasons for lack of income results from the indis-

position of some doctors to pay satisfactory attention to minor or functional ailments. It may be that physicians do not always put into practice business methods, that is, do not meet the wishes of patients, for a person who suffers with minor disorders may be willing to pay for relief, and if the service is not forthcoming, may make regular trips to a city for sympathetic manipulations. Chiropractors have said that if doctors cured their patients, there would be no demand for chiropractic treatment.

It has been suggested that a lucrative field of practice has not been generally developed and that people might be easily taught to consult doctors before the evidence of ill health appears, and a physician's income could be augmented by keeping his patients well. Surgeon-General Ireland has advanced the idea that regular physical surveys of soldiers should be employed and, if desirable in the army, it is equally so in civil life. Insurance companies are devoting attention to this plan with marked success.

The really useful man in the country towns should have good training as well as natural ability, for he is often unable to have assistance in grave emergencies and he should be the adviser of all the people on health matters. The inefficient doctor is as much out of place in the country as in the city. He should have sustaining courage and he may comfort himself in the recollection that, like McDowell, many a man away from medical centers has contributed important knowledge to the scientific practice of medicine and has earned enduring fame.

A NEGLECTED SUBJECT.

AMONG the many reforms relating to human health and comfort, comparatively little effective work has been done in correcting unreasonable adoption of fashions in the use of wearing apparel. The papers quite frequently devote space to witty criticisms of women's dress, but men must acknowledge that there is abundant reason for suspicion that the arrangement of the male attire might be modified to advantage. Women do not wear so many superfluous garments as men, and the question is often raised as to the significance of the greater weight of men's clothing. Very few men would be comfortable in a temperate climate in winter with the weight of clothing which women wear, but there has been no concerted movement to have women dress warmer or men dispense with some of the layers of woolen garments. It is probable that if boys and girls were dressed with about the same weight of clothing and this ratio maintained through life, both would be equally comfortable; and

since women do not suffer from cold any more than men, one wonders why men adopt the heavier clothing.

Although the average weight of a woman's clothes is five and a man's nine pounds, this difference is not explained in the relative size of the sexes. If men do not need more clothes than women, why not begin with the boy and keep him down to reasonable requirements? Some writers are contending that the heavier clothing of men is a distinct menace in warm weather, and that the result is depressing and, in some instances, adds an element of danger. The reports of heat exhaustion in summer seem to indicate that men are the victims more often than women.

We change our habits slowly, and it may be a long time before the high neckwear is displaced by simpler and more hygienic devices, and the heavier underwear and outside coats give way to lighter fabrics. The matter is of sufficient importance to warrant more definite advice from physicians.

AN APPEAL OF A QUACK TO POSSIBLE QUACKS.

A CIRCULAR has been sent to physicians in this vicinity, setting forth that a Dr. Gregory taught a special post-graduate course in Boston last year and that "several" have written requesting his return. He has "consented" to conduct another class in April. This class is for regular physicians. The course is guaranteed to be "far superior to the chiro-quack-tic system" in that three treatments as set forth by Dr. Gregory are better than ten of the other kind. The diseases cured by this method are named, and cover most of the incurables and some troubles for which surgery is the accepted therapeutic agent. It is claimed that one can, by the methods taught, even learn how to restore heart action after it has stopped.

Why do we have medical schools and hospitals, with all the expensive equipment and faithful service of able men, if this wonderful system makes them unnecessary? The JOURNAL suggests that information relating to attendance upon this course by any physician in good standing be furnished. It would be interesting to know if there are practitioners among us who are supposed to be decent, but who are really fools.

A prominent physician asks if any official body has any control over "these cattle." Unfortunately, no board has such authority. A victim might sue under the contention that money had been obtained under false representation. If anybody attends the course, there will be confirmation of Barnum's famous saying.

NEWS ITEMS.

NORFOLK DISTRICT MEDICAL SOCIETY.—A meeting of the Norfolk District Medical Society was held at the Masonic Temple in Roxbury on March 28, 1922. Dr. C. D. Knowlton presided. A most interesting paper was read by Dr. Paul D. White on "The Failing Heart." He differentiated the congestive from the angoral type, and then in a most enlightening way expressed his views on the action of digitalis compounds. Certain varieties of the American powdered leaves are, perhaps, the most active of any available, and should, of course, be first tested out on frogs, and used clinically in much larger doses than is usually done.

Dr. Robey and Dr. Pratt, in discussing the paper, praised it highly, laying special emphasis on the exceptionally fine work done in Dr. White's clinic at the Massachusetts General Hospital.

JOSEPH I. GROVER, M.D.

RESTORATION TO PRACTICE.—Eldredge D. Atwood, the osteopathic physician who shot and killed another member of the cult a few years ago, has been reinstated as a practitioner of medicine in this Commonwealth, by the Board of Registration in Medicine.

EXAMINATION OF APPLICANTS TO PRACTISE MEDICINE.—Forty applicants were examined by the Board of Registration, March 14, 15, 16, 1922. Twenty-four secured registration, fifteen were rejected, and the decision postponed in one case.

BOSTON MEDICAL LIBRARY IN CONJUNCTION WITH THE SUFFOLK MEDICAL SOCIETY.—A meeting of the Medical Section was held March 29, 1922. Dr. Francis G. Blake, Professor of Medicine, Yale Medical School, spoke on "Recent Investigations in Measles." The subject was discussed by Drs. E. H. Place and R. M. Smith.

GRANTS TO THE AMERICAN SOCIETY FOR THE CONTROL OF CANCER.—The Society has received the following gifts: From the family of Mrs. M. Larker of New York City, \$50,000 in memory of her son, who died of cancer. The income will be applied to the production and distribution of educational matter;

The Commonwealth Fund of New York City has given \$26,750. This sum will make it possible to employ a full-time field organizer and provide office equipment; also newspaper publicity and the distribution of educational material;

The Laura Spelman Rockefeller Memorial granted to the Society \$8,000 for the production of motion picture films.

These endowments and grants will provide for a larger educational campaign. It is expected that a Cancer Week program for next autumn will be announced later.

DEATH RATE IN BOSTON.—During the week ending April 1, 1922, the number of deaths reported was 237 against 228 last year, with a rate of 16.18. There were 35 deaths under one year of age against 36 last year.

The number of cases of principal reportable diseases were: Diphtheria, 47; scarlet fever, 40; measles, 185; whooping-cough, 6; typhoid fever, 1; tuberculosis, 49.

Included in the above, were the following cases of non-residents: Diphtheria, 1; scarlet fever, 11; tuberculosis, 7.

Total deaths from these diseases were: Diphtheria, 1; scarlet fever, 1.

LEGISLATIVE MATTERS.

House 98.—Bill relative to the names under which dentists may practise and to continuing the business of incapacitated or deceased practitioners. Reported ought *not* to pass by the Committee on Public Health, and placed in the Orders of the Day for next session.

House 750.—See House 1454 for report.

House 1454.—Resolve providing for an investigation by the Department of Public Health as to the feasibility of establishing hospitals for the treatment of surgical and non-pulmonary tuberculosis. New draft of House Bill 750 reported by the Committee on House Ways and Means and placed in the Orders of the Day for next session.

House 60.—Bill relieving druggists and others from advertising applications for licenses for the sale of liquors. House concurs in Senate amendment.

House 598.—Bill to provide for the registration of medical students for the limited practice of medicine. Ordered to a Third Reading by House.

House 747.—Resolve to prevent the introduction and spread of bubonic plague. Reported in House, reference to next annual session, by the Committee on Public Health, and placed in the Orders of the Day for next session.

House 1454.—See House 1484 for report.

House 1484.—Resolve providing for an investigation by the Department of Public Health of the feasibility of providing additional facilities for the treatment of surgical or non-pulmonary tuberculosis. New draft of House 1454, ordered to a Third Reading by House.

The bill providing for requiring vaccination of pupils in private schools has been defeated in the House.

House 1484.—Resolve providing for an investigation by the Department of Public Health as to the feasibility of providing additional facilities for the treatment of surgical or non-pulmonary tuberculosis. Passed to be engrossed by the House. Sent up for concurrence.

The Federal Maternity Act.—The United States Children's Bureau states that 36 states have signified acceptance of this Act. In eight States acceptance was by act of legislature, and in the others through proclamation of the Governor. The States which have not yet accepted the Act are: California, Louisiana, Maine, Maryland, Massachusetts, Washington, Mississippi, Nevada, New York, Rhode Island and Tennessee.

New York passed a bill on March 17, which provides \$130,000 for the protection of the health of mothers, infants, and children. The State Department of Health will administer the provisions of the Act, through a Division of Maternity, Infancy and Child Hygiene. Kentucky has passed a chiropractic bill which provides for a State Board of Examiners.

Miscellany.

A NEW PRISON.

THE State of Massachusetts has been considering the necessity of erecting a prison to take the place of the old building in Charlestown. Dr. Beverley Robinson has recently written on the care of prisoners. This may interest some physicians, and is here reproduced from the *New York Evening Post*. He says:

"All prisoners should have discipline, as in the Army or Navy, but no cruelty and no coddling. They should have comfortable cells, proper toilet facilities, good food, sufficient exercise, healthful, occasional distractions, such as games or instructive, elevating shows, but above all, plenty of work, with the best tools, and proper, just compensation, pecuniarily, for their work, from which should be deducted enough to pay the State for their keep and to give a large proportion of what is over and above for the help or maintenance of wife or children. In all cases, enough money should be given the prisoner when he has served his time to enable him to go into the world again and get work, away from his former pals and the neighborhood where he committed his crime.

"Every man should be taught a trade in the best possible way, so that he could make a living or secure a position without the necessity of a personal recommendation. All informers upon a man, who has been a convict and who is trying to reestablish himself as a good citi-

zen, should be dealt with severely. These are usually blackmailers and are, in my estimation, of the lowest kind. Another thing—and this is most important: all householders should have permission to have firearms, and it should be known that they are prepared and able to protect themselves in their homes and wherever they are exposed to attack by gangsters.

"The foregoing is not idle talk, but firm and reasoned conviction, after many years of knowledge of and contact with criminals. Women, and indeed men, are well protected by carrying and using, if threatened or legitimately suspicious, a watchman's whistle. A woman has also a great protection in the use of her hatpin. This is more dreaded even than a pistol, by hold-up men."

NEGRO HEALTH WEEK.

THE keynote of National Negro Health Week, April 2 to 8, will, this year be that the negro death rate, as shown by the census returns, is not only not increasing, but is steadily decreasing, and, moreover, is no higher today than that of New York and Boston was forty years ago, and is only about two-thirds as high as that of Trieste, Petrograd, Montreal, Venice, and other cities at that time.

From this it will be argued that American negroes are not necessarily short-lived, or especially liable to disease, and that their death rate is high because of their comparative poverty. Everywhere the colored people will be told to look after their health, that they are not doomed by Nature to an early grave, but that by care they can avoid many of the ills that lie in wait for them, and prolong life for many years. In the last eight years the death rate of the negro policy holders in one of the great New York life insurance companies has been reduced 9 per cent.

This year's health week, the eighth to be held, was conducted by Dr. R. R. Moton, Principal of Tuskegee Institute, under the auspices of the Annual Tuskegee Negro Conference and the National Negro Business League in coöperation with the U. S. Public Health Service and many other associations.

THE Cancer Research Fund (Ireland) has been founded by the Managing Committee of the City of Dublin Skin and Cancer Hospital, and the said fund is under the auspices and control of this Hospital. The Research Department will be built as an annex to the City of Dublin Skin and Cancer Hospital, in which ample clinical material is available for research.—*Medical Press and Circular*.

NATIONAL HOSPITAL DAY.

THE U. S. Public Health Service found the celebration of National Hospital Day so popular and so generally satisfactory last year that it heartily approves its repetition this year, on Friday, May 12, the anniversary of the birth of Florence Nightingale, founder of modern nursing. On that day, the public will be again invited to visit the hospitals in their vicinity as guests and to familiarize themselves with their atmosphere, methods, and aims.

Last year, Surgeon-General Cumming, of the Public Health Service, in accepting for the Service hospitals the invitation to join in the observance of the day, took as a text the existing scarcity of hospitals and the great difficulty everywhere met of finding hospitals, or even buildings that were capable of being converted into hospitals. During the year, much progress has been made in solving the hospital question, and the Surgeon-General bases his acceptance on the great work which the hospitals are doing in the war against disease.

In writing to Mr. M. O. Foley of Chicago, secretary of the National Hospital Day Committee, he brings out the following points:

"Familiarity with hospital work is rapidly becoming of more importance than was foreseen a year ago. It is apparent that the great war to be waged during the next half century is to be one to eradicate disease, to conserve health, and to lengthen life.

"This war has, indeed, already been begun and has not a few triumphs to its credit. Some of these are well reflected in the annual death rate in the United States, which during the last twenty years has dropped, per hundred thousand of the population; for typhoid fever, from 35.9 to 9.2; for measles, from 12.5 to 3.9; for scarlet fever, from 10.2 to 2.8; for diphtheria, from 43.3 to 14.7; for tuberculosis, from 201.9 to 125.6; for pneumonia, from 180.5 to 123.6; and for all causes, from 1.755 to 1.288. Incidentally, yellow fever has been eradicated and smallpox, plague, and typhus are held at bay.

"The hospital, of course, did not bring about these great life-saving reductions by its sole efforts. But it did, and does, begin the modern attack—the first really efficient attack—on nearly every disease of importance. In its wards and its laboratories, it has fought for the lives of its patients, and it has also taught and trained, and provided the weapons for those who later went to take up the fight.

"Looked at in this way, every hospital has become a fortress in a war waged for the health of the people and must more and more lead in the instruction of the people. A hospital is a great human laboratory where disease is studied and where soldiers are trained to save and to prolong life."

The Massachusetts Medical Society.

MEMBERSHIP CHANGES FOR THE MONTH OF MARCH, 1922.

Official List (2d).

Compiled by the Secretary of the Society.

Armstrong, Donald Budd, from Framingham to New York City, 370 Seventh Ave.
 Avedisyan, Avedis Der, from Boston to Brighton, office, Boston, 438 Columbus Ave.
 Bicknell, Ralph Emerson, Lynn, now 79 Burrill St.
 Blood, George Willard, Fall River, now 122 Purchase St.
 Bontwell, Horace Keith, Brookline, now 15 Green St.
 Bowen, James Francis, St. Louis, Mo., now U. S. V. Hospital No. 35, 5800 Arsenal St.
 Brown, Arthur Aloysius, from Worcester to Millbury, 7 South Main St.
 Brown, William James, from Boston to Cambridge, 881 Massachusetts Ave.
 Butler, Alice Etta, Boston, from 57 Cambridge St. to 201 Clarendon St.
 Camfill, Robert Emmett, Springfield, now 172 Chestnut St.
 Carlton, Frank Carr, from Salem to Fall River, 324 East Main St.
 Cassidy, Franklin Chester, from Medford to Chicago, 5311 Kenwood Ave.
 Chaffin, George Lawrence, Los Angeles, Calif., from Kerchoff Building to 706 Pacific Mutual Building.
 Chandler, Norman Fitch, died at Medford, March 6, aged 62.
 Chase, Heman Baker, from Hyannis to Westfield State Sanatorium.
 Cook, James Henry, from Braintree to Quincy, 138 Franklin St.
 Cruff, Frederick Ellery, from West Roxbury to Brighton, 296 Allston St.
 Cunningham, Thomas Donald, Denver, Colo., now 1058 Harrison St.
 Curtis, Charles Leverett, Salem, now 101 Federal St.
 Desmond, Margaret Ellen, from Boston to Beverly, 124 Rantoul St.
 Dodd, Isaac Spencer Finney, Pittsfield, now 34 Fenn St.
 Eliot, Martha May, now Boston; office, New Haven, Conn., New Haven Hospital.
 Emery, Edward Stanley, Jr., from Roxbury to Brookline, 46 Hyslop Road.
 Fales, Alonzo Cartland, now Middleton, Annapolis County, Nova Scotia.
 Fitz, Reginald, now Mayo Clinic, Rochester, Minn.
 Fox, Michael Bernard, now Worcester, 390 Main St.
 Fraser, Archibald McKay, Boston, now 270 Commonwealth Ave.
 Fremont-Smith, Maurice, Boston, now 205 Beacon St.
 Gangemi, Michael Angelo, North Adams, now 98 Summer St.
 Giddings, Harold Girard, from Allston to Newton Center; office, Boston, 520 Commonwealth Ave.
 Graves, William Phillips, Boston, now 198 Commonwealth Ave.
 Grimes, Loring, Lynn, now 84 Humphrey St.
 Gwynne, Samuel Carlton, Medical Corps, United States Army.
 Harding, Edward, Boston, now 520 Commonwealth Ave.
 Hayes, William Francis, Beverly, now 376 Cabot St.
 Haywood, Ralph Winsor, from Boston to Salem, 2 Columbus Ave.
 Hennessey, Thomas Francis, Lynn, now 65A Western Ave.

Holmberg, Carl Lester Magnus, from Campello to Woonsocket, R. I.
 Howard, Frederick Hollis, Williamstown, now Post-office Building, Spring St.
 Hurley, William Cyril Rowe, Quincy, now 1173 Hancock St.
 Irving, Frederic Carpenter, Delete "Brookline office." He was transferred from Norfolk to Suffolk, Feb. 7, 1917. Now Boston, 443 Beacon St.
 Johnson, Peer Prescott, Beverly, now 163 Cabot St.
 Jones, Frank Leslie, from West Somerville to Somerville, 281 Broadway.
 Jones, Lyman Asa, Swampscott, 80 Humphrey St.
 Jones, William Marks, Lowell, now 290 Branch St.
 Keith, Wallace Cushing, Brockton, now 46 West Rosseter St.
 Killam, Franklin Harrison, from Mountain View, N. H., to Brownville, Me.
 Kirkpatrick, George Holland, Lynn, now 203 Lewis St.
 Kotler, Moses George, from Brockton to Malden, 238 Bryant St.
 La Liberté, Elie Joseph, Fall River, now 422 North Main St.
 Leslie, Charles Thomas, Pittsfield, now Bank Row.
 Liebman, William, from Brookline to Hartford, Conn., 179 Kenyon St.
 Lowd, Harry Mosher, Swampscott, 90 Burrill St.
 Lucy, John Joseph, from Brighton to Watertown; office, Boston, 20 Charlesgate West.
 MacArthur, George Elden, Ipswich, now 21 North Main St.
 Mather, John Adams, from Colrain to Greenfield, 191 Main St.
 Maxwell, Charles James, Hinsdale, now Plunkett Ave.
 May, George Elisha, from Waban to Newton Center; office, Boston, 353 Commonwealth Ave.
 McCarty, Edward Michael, Somerville, now 60 College Ave.
 McCarty, James Joseph, Minneapolis, Minn., 4915 Dupont Ave., South.
 Mann, David Edwin, from Rutland to Johnson City, Tenn., Nat'l Sanatorium.
 Means, James Howard, Boston, now Massachusetts General Hospital.
 Mervin, Mary Fowler, now Ellis Island, N. Y., U. S. Public Health Service.
 Moir, Marguerite Winifred, from Brookline to West Roxbury, 538 Weld St.
 Nielsen, Edwin Björne, from Brookline to Newton Center; office, Boston, 543 Boylston St.
 O'Brien, Carl Robert, Bangor, Me., now 49 Hammond St.
 Odeneal, Thomas Helm, from Ancon, Panama, to Beverly, 163 Cabot St.
 Parcher, George Clarence, Saugus, now 38 Main St.
 Peabody, Francis Weld, Boston, now Boston City Hospital.
 Perry, Martha, New Bedford, now 166 Campbell St.
 †Rice, Austin Bradford, local list, Fiskedale. Delete name.
 Rich, Charles Edwin, Lynn, now 65 Broad St.
 Riley, Charles Allen, now Allston (Boston), 1277 Commonwealth Ave.
 Roney, Hugh Beverly, Pittsfield, now 69 Federal St.
 Rushford, Edward Allan, Salem, change from 76 to 78 Essex St.
 Shannon, Nat Vaughan, Cambridge, now 7 Clinton St.
 Shatswell, James Arthur, Beverly, now 15 Thorndike St.
 Sisco, Dwight Lewis, from Manitou, Colo., to New York City, Rockefeller International Health Board, 61 Broadway.
 Stickney, George Augustus, Beverly, now 68 Lothrop St.
 Stillman, Raymond Durgin, from Worcester to Wareham, Center St.

Vrooman, Earle Morey, North Adams, now 85 Main St.
 White, George Arthur, Cambridge, now 863 Massachusetts Ave.
 White, John Robert, from Washington, D. C., to Oakland, Calif.; office, San Francisco, U. S. Naval Training Station.
 Whiteside, George Shattuck, Portland, Ore., now 904 Journal Building.
 Whitman, Luther Onkes, from Amherst to Northampton, 203 Bridge St.
 Wood, Nelson Merwin, from Charlestown to Brookline; office, Boston, 510 Commonwealth Ave.
 Young, Edward Lorraine, Jr. Delete "Jamaica Plain (Boston)." He was transferred from Norfolk to Suffolk, June 9, 1914. Now Boston, 279 Clarendon St.

WANTED

Addresses of
 Azadian, David George
 Bardwell, Frederick Albert
 Bolduc, Alfred George
 Lawlor, John Charles

Changes of address should be sent to the Secretary, Dr. Walter L. Burrage, 42 Eliot St., Jamaica Plain.

Correspondence.

CERTIFICATE OF REGISTRATION STOLEN.

Mr. Editor:

We are in receipt of a letter from Dr. John A. Sullivan, 73 North Street, Pittsfield, Mass., in which he reports that his certificate of registration as a practitioner of medicine in this Commonwealth was stolen from his office on April 1, 1922. Perhaps publication of this notification in your JOURNAL might prevent the thief from engaging in practice in another section of this State, or in some other State.

Dr. Sullivan reports that he has notified the local police, but he does not inform us whether he has any clue as to the person who stole the certificate.

Very truly yours,

SAMUEL H. CALDERWOOD, M.D., *Secretary.*

THE MIDWIFE BILL.

Mr. Editor:

Your commentator, who, in the issue of March 23, expressed himself on the Midwife Bill, indulging in the hypothesis that a favorable recommendation would be due to the influence of the medical profession in Springfield, propounded, rather loftily, a double question, the first half of which contains an inference partially incorrect, and the second half an inference wholly so. Then, for the elation of knocking it down, he sets up a straw man in the statement, which nobody questions, that a well trained nurse is better qualified than a midwife to conduct obstetrics.

To recapitulate, by way of response: No physician in Springfield wants inadequately educated midwives—or any sort of midwives, for that matter; they recognize a fact, and try to make the best of it. People who have grown up where the *sage-femme* or the *hebamme* is a recognized institution seem to want a midwife here; if so, better a licensed than an unlicensed one. No one here has any inclination to restrain a well-educated nurse from being a midwife if she wants to—in fact, we should like to see one who would do a fraction of the varied work that a midwife does, even with the promise of a bonus bill.

PHILIP KILROY.

STATE OF NEW YORK—THE CIVIL SERVICE COMMISSION.

EXAMINATIONS APRIL 29, 1922.

Application forms for written examinations may not be sent out by mail after April 17, and may not be accepted after April 19. Application forms for unwritten examinations may not be sent out by mail after April 27, and may not be accepted after April 29.

109. Chief Occupational Therapist, State Hospital Commission. \$1200 to \$1320 and maintenance. Six appointments expected. The duties include the supervision of the treatment of mental patients by means of occupational therapy and the instruction and direction of nurses in occupational therapy. Appointments may also be made from this list to the position of Occupational Therapist in State and County institutions. Candidates must have had special training in occupational therapy and experience in the treatment of mental patients by means of occupational therapy. Subjects of examination: Written examination relating to occupational therapy, relative weight 3; training, experience and general qualifications, relative weight 7. An interview may be required. Open to non-residents.

115. Laboratory Apprentice, Division of Laboratories and Research, State Department of Health, \$840 to \$1020. Minimum age 18 years. Candidates must be college graduates or have had equivalent training or experience in physics and chemistry. Students who expect to graduate in June will be admitted. A general knowledge of bacteriology and practical laboratory experience is desirable but not essential. Subjects of examination: Written examination on physics and chemistry, relative weight 5; education and experience, relative weight 5. Open to non-residents and non-citizens.

For application form, address a postal card to State Civil Service Commission, Albany, N. Y.

NOTICES.

RESEARCH CLUB OF THE HARVARD MEDICAL SCHOOL.—At the next meeting to be held on April 14th, in the Amphitheatre of Building A, at 12.30 o'clock, Dr. W. R. Miles will talk on "Psychomotor Effects of Dilute Alcohol Compared with Concentration in the Urine."

BOSTON CITY HOSPITAL.—Staff Clinical Meeting, Cheever Surgical Amphitheatre. Friday, April 14, 1922, at 7.45 P. M. Symposium under the direction of the Heart Service of the Boston City Hospital. Diagnostic Analysis of 300 Heart Cases in the Out-Patient Department, Burton E. Hamilton. Lantern slide demonstration on some points of heart disease, William D. Reid. Failure of the Chronic Heart with and without Physical Signs, William H. Robey. Some Notes on the Action of Digitalis, Thomas J. O'Brien. Refreshments served. Open discussion. Physicians and medical students invited. H. Archibald Nissen, Halsey B. Loder, Committee.

CENSORS' MEETING.—The Censors of the Suffolk District Medical Society will meet for the examination of candidates at the Medical Library, No. 8 The Fenway, Thursday, May 4, 1922, at 4 o'clock. Candidates should make personal application to the Secretary, and present their medical diploma at least one week before the examination. Richard H. Miller, Secretary, 402 Marlborough St., Boston.

NEW ENGLAND OPHTHALMOLOGICAL SOCIETY.—A special meeting of the New England Ophthalmological Society will be held at the Massachusetts Charitable Eye and Ear Infirmary, 233 Charles street, Boston, on Friday evening, April 14, at 8 o'clock. Professor Barraquer, Colonel Elliot and Dr. McReynolds will be guests of the society at this meeting. At the latest meeting, in March, it was voted that Article 3 of the constitution should be amended to read as stated in the previous call. Dr. McReynolds and Colonel Elliot will address the society on the subjects of Cataract Extraction and Glaucoma. Operative clinics will be held at the Massachusetts Charitable Eye and Ear Infirmary on the mornings of April 14 and 15, at which Professor Barraquer will demonstrate his method of intracapsular extraction. It is expected also that Colonel Elliot will demonstrate his method of trephining for glaucoma. It is hoped that all members of the society will make an effort to avail themselves of the exceptional opportunity to see these operations.

W. HOLBROOK LOWELL, *Secretary*.

CHILDREN'S HOSPITAL.—There will be a clinical meeting in the Amphitheatre of the Children's Hospital, 300 Longwood Ave., Boston, at 4.30 o'clock, April 14. Physicians and medical students are cordially invited to attend.

NEW ENGLAND PEDIATRIC SOCIETY.—The seventy-fourth meeting of the New England Pediatric Society will be held at the Boston Medical Library on Friday, April 14, 1922. The following papers will be read: Treatment of Asthma and Associated Diseases in Childhood, Allan R. Cunningham, M.D., Boston. Leukemia and Severe Anemia in Childhood: A Study of Thirty-Seven Cases, John Lovett Morse, M.D., Boston; Bone Tuberculosis in Childhood (with lantern slides), Frank R. Obert, M.D., Boston. Light refreshments will be served after the meeting. Richard M. Smith, M.D., President; Lewis Webb Hill, M.D., Secretary.

NATIONAL BOARD OF MEDICAL EXAMINERS.

The dates for the next two examinations of the National Board of Medical Examiners are as follows: Part I and II, June 19, 20, 21, 22, and 23, 1922. Part I and II, September 25, 26, 27, 28, and 29, 1922.

Applications for the June examination should be in the Secretary's office not later than May 15th, and for the September examination not later than June 1st. Application blanks and circulars of information may be had by writing to the Secretary, Dr. J. S. Rodman, 1310 Medical Arts Building, Philadelphia.

BOOKS FOR REVIEW.

THE JOURNAL acknowledges the receipt of the following books for review:

The Etiology and Pathology of Typhus. By S. Burt Wolbach, John L. Todd and Francis W. Paley. Published by League of Red Cross Societies at the Harvard University Press, Cambridge, Mass. 222 pages. 34 plates.

Book on the Physician Himself. By D. W. Cathell. Published by the Author, Baltimore, Md. 359 pages.

The Psychic Health of Jesus. By Walter E. Bundy. Published by The Macmillan Co., New York. 299 pages. Price \$3.

An Index of Treatment. By various writers. Published by William Wood & Co., New York. 1029 pages.

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OPPORTUNITIES OF THE GENERAL PRACTITIONER IN MEDICAL INVESTIGATION.

THE ANNUAL ORATION OF THE MIDDLESEX SOUTH DISTRICT MEDICAL SOCIETY, APRIL, 1921.

By ROGER I. LEE, M.D., CAMBRIDGE, MASS.

I TRUST that it does not seem presumptuous on my part to undertake to speak to this Society on the particular topic that I have chosen. My choice of this topic is based, not on any criticism of the general practitioner, but on my affection for him. Certainly, we have had in the past, and still have at present, notable examples of the best types of general practitioners. May I recall to your minds the lives and achievements of Dr. Waterhouse and Dr. Morrill Wyman, both of Cambridge and of this district, and among those, now happily living, the names of Dr. Edmund H. Stevens of Cambridge, and Dr. Alfred Worcester of Waltham? There are, of the younger generation, conspicuous examples of general practitioners; but I must refrain from further personalities.

We may decry as we will the tendency of specialism in medicine, but after all, medicine is only participating in a very general movement that affects all activities of modern civilized life. While this tendency in medicine has very definite drawbacks, it would seem to

be inevitable, and must in its general scope be accepted. It is possible, however, to make certain readjustments which would enhance the value of this tendency and at the same time minimize its defects.

One of the great defects of the tendency to specialization is, I take it, the effect on the morale of the general practitioner. It is, indeed, curious that the general practitioner is as highly regarded as ever by the substantial bulk of citizens, or, perhaps, more highly; but the general practitioner himself seems to place an improperly low value of his own standing in the medical community. To be sure, these are the days of the glorification of the laboratory worker, but it is inevitable in human progress that the pendulum should have fairly wide swings, and in the long run proper values tend to be set. Recently I have heard an eminent practitioner who would, I think, be designated by common consent as a specialist in internal medicine, apologize for the presentation of certain investigations on the ground that they were purely clinical. Such a spontaneous and probably unconscious apologetic attitude goes far towards undermining the morale of clinicians and general practitioners. It is, perhaps, a foible of human nature that valuations are very largely set by the possessor of goods, whether material or intellectual. Humility is highly regarded in the abstract as a virtue, but in practical matters it not infrequently happens that goods can be sold by marking up the prices as

well as by keeping them down. It seems to me that the uncomplaining acceptance on the part of the clinicians and the general practitioners that their services are of slight value to mankind and to the medical profession, is as unfortunate as it is unjustified.

We all know that many important medical discoveries have been made by general practitioners. Our greatest discoveries in medicine were, as a rule, anticipated by the observations of general practitioners. The actual relation of bacteria in the transmission of disease was, of course, demonstrated by such master minds as Pasteur and Koch, but clinical observations have repeatedly suggested the underlying principles relating to infectious disease. We recall with pleasure that Dr. Oliver Wendell Holmes, in 1846, suggested most of the important facts that bear upon the puerperal fever. Dr. Finlay suspected the relation of the *Stegomyia* mosquito in transmitting yellow fever, before the findings of the Reed Board permanently established this important discovery. Our conviction that tuberculous patients are cured by treatment with abundant fresh air, rest, and a generous diet, is based, not on laboratory evidence, but upon clinical evidence. As a matter of fact, laboratory methods cannot explain the beneficent effect of good hygiene on tuberculosis beyond the obvious platitude that good hygiene increases bodily resistance. Much laboratory work has been done on tuberculosis, but it must be confessed that great strides have not been made since Koch's original communication, and furthermore, that clinical data furnish us the general conceptions of the disease and its treatment. One should not, of course, minimize the importance of laboratory observations, but on the other hand, one should not minimize the importance of so-called clinical observations. The important clinical observations on tuberculosis have been the foundation of a great world-wide movement in behalf of good health and hygiene. Through a common interest in the prevention of tuberculosis, the medical profession and the laity have been closely associated, and have come to a mutual understanding, to the great benefit of both.

It is by no means proven that liberally equipped hospitals and richly endowed institutions have a monopoly on medical problems. Medical progress depends primarily upon the individual and not upon the plant. It is perfectly true that the well-equipped and well-endowed plant attracts the most progressive minds, but it is also true that many of those minds have done their most important work in obscurity and under the handicap of wretched physical surroundings. Pasteur, working in cellars and outhouses, probably accomplished more for medical science than has the elaborately appointed institute that bears

his name. Medical progress, perhaps, depends mostly upon the single factor of a proper point of view, and we can largely discount the other factors, particularly the factors of physical surroundings. The advantages of a hospital or of an institution of learning are not found in the material advantages, but in the installation, often indirect and subtle, of the proper viewpoint.

One can readily discern the very great advantages possessed by the general practitioner in shaping medical progress. In the first place, most cases of illness come under the observation of general practitioners. Secondly, there are few aspects of medicine which are capable of such concentrated specialism that the patient as a whole, including his ancestry and his environment, can safely be neglected. The general practitioner is and must be interested in his patient as a whole and not in any one or several detached segments. The presence of tubercle bacilli in the sputum, as reported by a competent laboratory, can be accepted absolutely as proof of the presence of pulmonary tuberculosis. Nevertheless, it is not possible, at least at present, for the laboratory man to indicate always, from a thorough study of the sputum, the stage, the probable prognosis, or the best method of treatment of each individual case whose sputum he studies. The growth of social service in our hospitals is merely an index that the hospital specialists recognize the limitations of specialists in medicine and plan to fill up the large gap by the introduction of social service.

To be sure, the intensive study of disease by specialists with laboratory equipment has done much to advance the knowledge of certain diseases, but in some aspects at least these studies have been disappointing. The disappointment has resulted in a most vigorous protest on the part of Sir James Mackenzie, who goes so far as to say that the modern tendencies in medical study are entirely wrong. One has to recall the tremendous amount of work which has been done upon chronic nephritis,—to use a common illustration,—and the enormous and somewhat bewildering bulk of literature which has come out of that work, to appreciate the significance of Mackenzie's statements. The advanced cases of chronic nephritis have been welcomed in the hospitals, and many research workers have devoted countless hours of labor to the investigation of that condition. One versed in the literature of the subject can give thousands of references to formidable work on the blood chemistry, metabolism, etc., of chronic nephritis. Of course, all of this work is not in vain. It has resulted very markedly in a better understanding of this disease. It is often assumed, but it should not be accepted, that the findings in the late stage of a disease enable one to decide positively what are the

findings in the earlier stage. Scientific investigations would gladly include the early stages of the disease, but somehow or other, opportunities do not seem to be available. It is remotely possible that the early stages of chronic disease may be quite different from what we are led to suspect from the intensive study of the later stages. It should be remembered, too, that our tests which have been developed for the purpose of diagnosing and gauging the intensity of a late stage may not be applicable to an early stage of the disease. It is, indeed, extraordinary that while advanced cases of certain chronic diseases fairly encumber our hospitals, yet earlier stages of these diseases are relatively absent. In reality, we know actually very little concerning the essential mechanism of that common disease first accurately described by the excellent general practitioner, Bright.

Recently I had occasion to bring together for publication the available material concerning certain blood diseases. The first admirable description given by a general practitioner (Addison), of pernicious anemia, still remains, I think, the best description of the disease. Modern researches have developed refinements of diagnosis, prognosis, and treatment, but Addison described all the essential features of the disease. Even in the case of yellow fever, which stands out as a brilliant example of organized intensive attack upon a difficult problem, the successful solution of the yellow fever substantiated the clinical investigations of certain practitioners.

It is not my purpose to minimize organized medical research, and I am both enthusiastic and optimistic concerning the abundant harvests that organized medical research will continue to bring to mankind. I would, however, like to urge the importance of supplementing these organized researches by the investigations of the general practitioner. As Mackenzie has pointed out in his book, hospitals attract disease in the well-developed stages, and as a necessary corollary of that, the study in hospitals is usually directed towards advanced disease. Mackenzie contends that the proper stage of the disease for study is in the early stages, in that stage of transition between health and disease. It is at that stage that the case comes under the observation of the general practitioner. The general practitioner alone can watch the transition of a patient from complete health to incipient disease. It is also the general practitioner alone who is not handicapped by the superficial peculiarities and mannerisms of patients. The general practitioner can discriminate in the case of a person that he knows well, between real symptoms and trifling ailments. The records of most practitioners will show many cases whom he did not consider very sick, but who, to his

temporary chagrin, were definitely diagnosed by eminent specialists as seriously ill with some one of many ailments. It usually happens that in the course of time these patients return to the general practitioner and their cases return to the actual classification in which he originally placed them. I dwell a little upon this fact because it explains, not only the special position of the general practitioner in the study of disease, but also it illustrates very well the complicated and too little understood physiology of the human body. There is no human physiological process which is not capable of extensive modification under the influence of individual peculiarities. The time may come when exact laboratory methods may be able to interpret with delicate discrimination the now complicated phenomena of the field of human physiology, but at present we ought to be extremely cautious in accepting, without reservation, the results of any given test unless a considerable margin is left for the influence of human variations upon the test.

The endeavors of the general practitioner along the line of medical progress will, however, probably not be made along the exact stereotyped lines found so fruitful in research laboratories. A medical practitioner will not, himself, study the finer details of the chemistry of blood, or study metabolism. He can, however, utilize previous studies and already existing machinery on his own material and for his own purposes.

While the general practitioner may not be able to use personally all of the instruments of laboratory research, he can profitably utilize the general methods of laboratory research. A laboratory problem is simpler than a human problem, and laboratory research will furnish the general practitioner with valuable suggestions. Medical laboratory research utilizes the same general methods which have been found of advantage in all scientific investigations. There are laboratory workers who do not contribute to medical progress in spite of hard work, because they do not meet the general requirements of investigative methods. Some laboratory workers achieve results in spite of their neglect of these general methods, but these men are rare exceptions and their delinquencies are usually more superficial than real.

A sound investigator must keep some form of record of his experiments. Perhaps the general practitioner is weaker in regard to keeping records of his experiments than in any other respect. After all, the treatment of any individual case, the administration of any given drug, must be regarded as an experiment. I am not advancing the impossible theory that general practitioners should keep voluminous notes, because I have too intimate

a knowledge of the difficulty of medical practice to advance such an hypothesis. Nevertheless, some form of record-keeping is absolutely essential if the medical practitioners are to make their contributions to the progress of medicine. If one wants, one can regard perfectly legitimately general practice as a great experimental laboratory. Certainly the positive knowledge in regard to medicine is not sufficient to give grounds of complaint if such a view is taken. Selected extracts from the records of busy practitioners would be of tremendous value. It has happened that certain otherwise obscure practitioners have become famous by having made available to posterity their case records. These case records are invaluable, not only as medical history, but as history of the customs of those times.

The more ambitious practitioners will want to go further than this, and consequently will want problems to investigate. As I have suggested, there is all of medicine that can be benefited by advancement. But the laboratory worker in bacteriology does not attempt to investigate all bacteriology. He selects a particular problem in which he does intensive work and of which he keeps particularly careful records. The laboratory worker, in picking out his field for investigation, limits that field for the moment to as small dimensions as possible. In other words, he takes the smallest possible corner for his detailed investigations. He would not take for immediate investigation such a problem as treatment of pneumonia, but he might well take the treatment of a particular kind of pneumonia with one kind of drug.

In accordance with general scientific principles, the laboratory worker is duly impressed with the importance of controls. I take it that if there is any just criticism applicable to clinicians and general practitioners, it is that their publications and their private deductions are often not subject to rigid controls. It must be confessed that laboratory workers are not by any means immune to criticism. Yet the general practitioner has, as a rule, available the material for controls of all sorts.

Not everyone, and not every man who works in a laboratory, has what is known as the investigative spirit. The investigative spirit is nothing particularly mysterious or unusual. It is, primarily, a mixture of that much-maligned human attribute called curiosity, and of industry which dignifies curiosity, which without it might be gossip, to the realm of investigation. Other qualities are desirable, but not absolutely necessary. Many of our great intellects have not gone very far, but most of our men of great industry, if possessed of a modicum of intellect, have gone far. Good training might be regarded as necessary. It certainly seems

necessary, looking backwards over the lives of the great investigators, but we have not such ability to forecast the effect of a particular training. Certainly one cannot minimize the beneficent effects of good, sound training, nor the deleterious effect of poor training. There are many worthy individuals whose acceptance of the established order of things is so complete and so complacent that the best training in the world would not arouse in them any enthusiasm for investigation, for, after all, investigation means the possibility of a change. There is a great number of physicians who acquire this attitude of complacent acceptance of things as they are, from their medical training. The dogmatic statements of many teachers of medicine contain not even a dark suggestion that there is anything more to be learned on a given subject. The fixed customs in certain hospitals hardly permit the thought to arise in the junior physicians and surgeons that these customs will ever be changed. It may be urged with some justice that a very skeptical point of view is, perhaps, more dangerous than a very complacent point of view. On the other hand, if science means anything it should mean that all of its data are accepted on no other grounds than they have been demonstrated and proven, as far as it is possible. When one recalls all the prodigious advantages in medicine in each decade of the last forty years, and that apparently the fundamental conception of medicine has been altered, one ventures to prophesy that similar prodigious changes will take place in the next forty years and that a medical student who graduates today, and who depends upon the information acquired in the medical school for his professional life, will find himself ridiculously out of step with the times within ten years, and an object of pity after that.

It may be urged that inasmuch as the general practitioner has to keep up with medical progress, of what use is it for him to participate in actual medical investigations? Certainly the days of the general practitioner are urgently busy. There is a deluded notion concerning medical investigation. It is generally assumed that the good to be gained from medical investigation is the direct advancement of medical science. It is given to few men to further science directly as by important discoveries. It is, however, possible for most medical men, by improving themselves, to participate in medical advancement. If general practitioners continue in the future, as in the past, to make really great discoveries, so much the better, but the main purpose of the participation of general practitioners in investigation would be served even if no discoveries are directly made.

It is necessary at this point to emerge from history and argument into the concrete sug-

gestions for the present and immediate future. The general practitioner has it within his power to make observations that will upset many widely accepted medical assertions. I have in mind my own experiences in connection with Harvard University. There is at the present time no satisfactory standard of what constitutes normal health among young men. I found, on the examination of large numbers of young men, that approximately 5 per cent. of them had albumin in their urine, without other manifestations of nephritis. I had seen, occasionally, in previous practice, symptomless cases of so-called functional albuminuria in young men and had read in the literature that such cases did occur. After several years of observation, our investigations at Harvard University showed that albuminuria in young men, without other signs or symptoms, was of no serious import. Doubtless similar observations had been made upon individual cases by countless general practitioners, but the tabulation of these cases had not been made in any very satisfactory way, although it was my experience that general practitioners were very much less alarmed by the occurrence of albumen than were the specialists in internal medicine. From his vantage ground the general practitioner had frequently observed the symptom of albumen, and had arrived at a correct interpretation of that particular finding. This illustration could be multiplied, showing the opportunity for the general practitioner to make real contributions to our knowledge of what constitutes a normal standard of health.

Not very long ago I was present at an international conference. The conference resolved itself into special committees. Frequently in the committees, made up ostensibly of scientific experts along special lines, certain points were mightily discussed by erudite individuals. To my somewhat abrupt remark that every general practitioner had the solution of a particular problem, the query was raised as to the place of publication. It subsequently developed that this information was not obtainable either in medical schools or in textbooks. Far be it from me to urge additional publications on the subject of sex, but the outstanding fact remains that the general practitioner has a mass of first-hand facts of sex—some tragic, some comic, but mostly dull and commonplace,—and that he, if he would, could discuss from an adequate perspective, Havelock Ellis and Freud, and their followers and adherents, in a fashion that, I expect, would be homely, emphatic and refreshing.

But it is not merely along the lines of what might be called establishing standards that it seems to me lie the opportunities for investigation on the part of the general practitioner. Great opportunities, as I have indicated previ-

ously in this paper, lie in the study of early disease, and especially early chronic disease. At the present time, the general practitioner has available for him a really remarkable assortment of technical machinery in the way of diagnostic and prognostic laboratory machinery. The city and state laboratories will do for the general practitioner, without cost, all the essential laboratory investigations, such as bacteriological examination of the sputum, Wassermann test, etc., etc. The consultation clinic idea, such as at the Massachusetts General Hospital, is designed to furnish to the general practitioner the laboratory and special facilities of a large hospital. I appreciate fully some of the difficulties in securing these special data in individual cases. There is always the bother of arrangements. There is always the likelihood of a certain amount of red tape, and there are frequently financial difficulties. Nevertheless, the opportunities are there, and are being developed, and the future developments depend almost exclusively upon the attitude of the general practitioners. By a concerted and progressive action, the general practitioners can probably secure any modification of these new developments that they desire. The requisite is their unified activity. I am not a special pleader for the consultation clinic at the Massachusetts General Hospital or at any other hospital, but I am a pleader for making available to the general practitioner the complicated technical methods which have been found valuable in the practice of medicine. I believe that it is possible for general practitioners to secure all of the benefits of any of the diagnostic procedure now utilized in medical laboratories for himself and for his patients. I believe that it is possible for him to undertake research in a group of his own patients just as a visiting physician in a hospital can undertake a research on a group of hospital patients. But at the present time, the various facilities in technical laboratory methods are comparatively little utilized by the general practitioner. The point remains, however, that they are there and can be utilized, provided he so desires.

But the progress in medicine does not concern itself exclusively, or even mainly, with the limited investigation of the utility of some delicate laboratory procedure in diagnosis, prognosis, and treatment. The field is far larger than that. Our modern hospitals are tending to develop into diagnosis clinics. After the diagnosis is made, the treatment is outlined and usually expedient, partly from the financial point of view, but largely from other points of view, make it desirable that the treatment should be in the patient's home, that is to say, properly under the charge of the general practitioner. It is, of course, possible

that the hospitals which have developed the diagnostic phase of medicine so extensively may develop also the therapeutic phase, but it seems that the tendency is not that way. Outside of special therapeutic procedures, such as operations, etc., treatment will be largely in the hands of the general practitioner. Successful treatment in the case of many diseases must be applied over a considerable period of time. It is only the general practitioner with his continuous surveys, who can record the actual results and make proper deductions therefrom. It seems to me that in the line of treatment there are tremendous opportunities for investigation on the part of the general practitioner.

Let us take the single illustration of the amount of exercise which cardiac cases should take. Obviously the hospitalized cardiac case is out of the question. If the hospitalized cardiac case recovers sufficiently to go home and resume ordinary life to a greater or less extent, he comes under the charge of the practitioner, and joins an already large group of cardiac cases with which any practitioner is always familiar. These cases will be under the observation of a general practitioner for a period of many years. They offer opportunities for carefully recorded data which would be of inestimable value to the medical profession. There is, perhaps, a tendency among medical men to assume that the dictum of rest in a cardiac case has been somewhat over-emphasized, but there are at the present time no sufficient data upon which to justify that assumption. The general practitioners could contribute tremendously important data upon that particular point.

I have, perhaps, given sufficient illustrations to indicate my general suggestions. I have not attempted to outline the definite shape and scope of the investigations which might be carried on by the general practitioner. Each practitioner will find readily available, ample material so that he may undertake the kind of investigation which his interest and his material indicate.

I realize fully, as I have said before, that general practitioners are busy men; that all too often every moment is devoted to urgent matters which cannot be postponed, but I have not attempted to make out of the general practitioner a laboratory worker, but have tried to indicate to him how he can utilize the already existing opportunities and how he can assist in the development of these facilities for his own advantage. I have tried to show that particularly in the study of early disease, and in the treatment of chronic disease, the general practitioner has a vantage position in which he has unexcelled opportunities. I have tried to outline some of the requisites which seem to me to be important in the utilization

of his material for investigation. I would like to repeat my emphasis upon the keeping of records, the utilization of existing laboratory facilities, and lastly, the cultivation of a viewpoint which will tend toward investigation and which will progressively cease to countenance any derogatory estimate of the value of the general practitioner, not only to the community, but to the medical profession.

Finally, by his investigations, the medical practitioner, like the laboratory worker, will only very rarely indeed make important scientific discoveries, but both the practitioner and the laboratory worker will prodigiously benefit themselves by their investigations. The benefit is not solely selfish, certainly not in the case of the general practitioner, because the community will be the ultimate gainer.

A CASE OF RECURRENT BILATERAL PNEUMOTHORAX.

BY JOHN B. HAWES, 2ND, M.D., BOSTON.

In a recent issue of this JOURNAL,* Morrison reports a case of recurrent spontaneous pneumothorax. In view of the interest in such cases and the fact that they are frequently overlooked and wrongly diagnosed, I am reporting a similar case of my own. The striking points of this case are:

1. That the pneumothorax when on the left side caused attacks of pain closely resembling angina and neuritis in the left shoulder and arm and when on the right side pain which at one time was thought to be due to disease of the gall-bladder.

2. The rather robust good health of the patient during the intervals between attacks and the absence of any permanent clinical signs of pulmonary tuberculosis, although during and shortly after his attacks of pneumothorax such signs were apparently plainly evident.

The details of this case are as follows:

F. E. G., age 27, married. Family history excellent; two brothers, one sister, wife and one child alive and well. Habits very good.

Previous History.—In the past, he had always been well and strong, with the exception of the usual children's diseases. Aside from these, he had never had any serious illness. His maximum weight was 138 some years previous to my first examination. His weight at that time was 130.

Present Illness.—In 1911, when feeling perfectly well, he came down with a sudden attack of shortness of breath, pain in the right side of his chest, especially in the right shoulder-blade. There was a slight cough

*BOSTON MEDICAL AND SURGICAL JOURNAL, Vol. 185, No. 22, Dec. 1, 1921, p. 659: "A Case of Recurrent Spontaneous Pneumothorax," Hyman Morrison, M.D., Boston.

which lasted two weeks, during which time he did not go to bed. There was no fever and his cough soon disappeared, leaving him feeling perfectly well. Since this first attack in 1911, at intervals of approximately every six months, with the exception of one two-year period when he was free from this trouble, he has had attacks similar to this one above described except that the pain has been on alternate sides. The striking feature of these attacks has been pain which comes on instantly without any warning, even when he is feeling perfectly well. This pain has apparently no relation to exercise or eating. It never comes on at night. When the attack is on the right side there is some soreness in the region of the gall-bladder. Never, however, has there been any jaundice or bile in the urine. He takes aspirin up to 40 grains daily to gain relief. He states very definitely that it is the pain which bothers him, and not the shortness of breath. When I first saw him, August 8, 1917, he had just been getting over such an attack on the right side, but on that day had had a mild attack of pain on the left. He has seen many physicians in this city and has had thirteen x-rays.

On physical examination, I could find nothing wrong with his lungs or elsewhere, except a temperature of 99.2 and a pulse of 96, apparently of nervous origin.

He took his temperature and pulse four times a day at home, and reported to me again on August 13, 1917. Temperature and pulse during this period were absolutely normal, and again my examination was negative. The urine, blood and sputum were likewise perfectly normal.

The remarkable point in this case is the fact that when I first saw him he brought with him an x-ray plate, taken by Dr. Arial George of this city, about ten days before, which clearly showed practically a complete pneumothorax on the right side. This x-ray was taken on account of suspicious symptoms referred to the gall-bladder, and the pneumothorax was found purely by accident. I admit frankly that I found it difficult to believe the evidence, even though presented by the x-ray.

October 31st, 1917, nearly three months later. I saw this man again. He told me that he had been perfectly well up to six days previous, when he had been taken with another severe attack of "neuritis," this time on the left side of his chest and in the left shoulder-blade. There was no cough or sputum. It was not so severe but that aspirin could control it. After three days of this, there was a sudden, much more severe attack of pain associated with some shortness of breath, doubling him up to the left, along with coughing and sputum. His family physician in Brookline sent him to see Dr. E. W. Taylor of this city for an opinion

concerning this so-called neuritis. Dr. Taylor found nothing to account for the pain, but did discover an irregular heart for which he, in turn, sent him to the Peter Bent Brigham Hospital. Here the heart was found to be normal, but x-ray showed a complete pneumothorax on the left side.

Physical examination at this time—October 31st—showed increased voice and breath sounds at the right apex, with a few fine crackles in the region of the spine of the scapula behind on the right. The lower one-half of the left chest was hyper-resonant, with nearly absent voice and breath sounds. The heart was slightly to the right. Examination of the sputum was negative.

Two weeks later I saw him again. Although his symptoms were subsiding, he still had a slight cough with raising in the morning, and found it difficult to sleep on his left side. There was evidently still some air in the left pleural cavity.

December 17,—a month later,—I saw him again, when he was feeling very well, with no symptoms of any kind. His lungs at that time appeared to be perfectly normal. He went to Saranac Lake, but remained only three weeks. An x-ray taken at the Trudeau Sanatorium, according to the report given me by the late Dr. Robert C. Paterson, showed "about as healthy a pair of lungs as it is possible to see. There are some adhesions between the right lower lobe and the diaphragm. These and a few apparently calcified tubercles are the only things that are at all noteworthy."

On October 19, 1918, when I next saw this patient, he told me that he had been accepted for the army, although he had been rejected for aviation on account of muscular eye trouble.

Four months later,—February 6, 1919,—I again saw him. He reported that he saw only one day of service and likewise that he had had no more attacks of pain or pneumothorax. His complaint at this time was weakness and lack of energy. I could find nothing wrong with his lungs.

Six weeks later,—March 25, 1919,—he came to see me again, looking well, up to the maximum weight, but complaining of soreness in the center of his chest, increased on coughing. I could find nothing wrong with his lungs in any way.

December, 27, 1919,—nine months later,—I saw him for the last time. He had been perfectly well during this period, until the night previous to this visit when, out at dinner, he was taken with a very bad pain in the left chest, with shortness of breath, coming on suddenly out of a clear sky, without warning. An x-ray of his chest taken at this time by Dr. Arial W. George and Dr. Ralph D. Leonard, dated December 29th, 1919, is as follows:

"We find a pneumothorax on the left side, due to partial collapse of the left upper lobe. There is no x-ray evidence of any active disease in either lung."

There was considerable shock, prostration, and great pain accompanying this last attack, apparently a very severe one. Physical examination showed the heart to be two inches to the right. The right lung appeared to be normal; the left chest was hyper-resonant all over, except in the base and axillary region, where there was dulness, with numerous rubs and dry râles. There was diminished and almost absent breathing elsewhere, especially over the back on the left, where there were practically no breath sounds to be heard.

Since this last examination of December, 1919, I have not seen or heard from this patient until December, 1921, when I received word from him in Florida, where he had established himself in the cultivation of oranges. He wrote as follows:

"My health has been very good for the past two years. I have had several attacks of my old trouble, but they have been very slight, and pass away in a few days. The attacks seem to come in periods of six months. They do not trouble me very much, except to cause pains in my chest and back, around my shoulder; also there is some shortness of breath for a little while. I feel sure that neither of my lungs has collapsed to any great extent. The pains I have are like pleurisy, and do not stay in any one place. I am living out-doors, practically the whole time, and outside of the few troubles mentioned above, my general health is fine. My weight remains about the same—125 pounds—and I am able to do quite a lot of out-door work around my farm."

This is a striking and interesting case, demonstrating various important facts:

1. It demonstrates clearly what is to me an important and encouraging point, namely, the curability of tuberculosis. There have been a dozen times in the past ten years that this young man has had these attacks of pneumothorax when moisture in the way of râles, rubs, etc., have been present in his chest, but which have entirely cleared up, apparently, in two or three weeks' time.

2. It has shown, as mentioned before, that these attacks of pneumothorax, especially the mild ones, may closely simulate other non-pulmonary conditions, such as neuritis, gall-bladder disease, angina, etc.

3. Finally, it has shown the need of the routine careful examination of the chest, even under conditions when the symptoms do not point directly toward heart or lung disease.

THE American Association of Anaesthetists and the Mid-Western Association of Anaesthetists will hold a joint meeting in St. Louis, May 23-24, at Hotel Jefferson, the first three days of the A.M.A.

PRESENT CONCEPTION OF COLON PYELITIS AS REGARDS TREATMENT.*

By E. GRANVILLE CRABTREE, M.D., BOSTON.

In this brief communication I plan to give what surveys of recent literature as well as my own experience, gleaned from cases seen during the past two years, indicated to be worth-while procedures in the handling of colon pyelitis. I shall not attempt to give any of the arguments on which this work is based.

ACUTE PYELONEPHRITIS.

A survey of the reports from a number of observers in many different clinics shows that, irrespective of the drugs used, the prognosis for cure of acute colon bacillus infections of the kidney is about equally good. All have made use of the same essentials of treatment; namely, rest in bed, light diet, forced fluids, and the treatment of pain and bladder distress by appropriate drugs. Some observers have done nothing further. Most observers prefer to alkalinize the urine with sodium bicarbonate or sodium citrate at the beginning of the infection, some preferring to use sodium citrate after a short course of hexamethylenamine. In still other instances the course of the disease has been studied in cases where the intake of fluid has been kept low to insure greater concentration of the formalin in the urinary passages. The majority seem to prefer hexamethylenamine given with copious intakes of fluid. Since the results are not vitally different under these various forms of treatment we are justified in considering acute colon pyelitis somewhat in the nature of a self-limited condition in which the aim of the physician in charge is to contribute to the comfort of the patient and to give those drugs which are best tolerated in that particular individual. It is undeniable that certain inflamed bladders will tolerate hexamethylenamine and that others are aggravated by it but will be made comfortable by either complete alkalinization of the urine or reducing acidity by the alkali drugs. Cystoscopic examination and bladder instrumentation are usually contraindicated during the acute stages of the disease.

CHRONIC PYELITIS.

Acute pyelonephritis, whether it marks the onset of the infection or is an exacerbation of a chronic condition, in its quiescent state becomes pyelitis. In this form it is capable of persisting for an indefinite period of time. I have endeavored to determine some facts as to what becomes of these cases. They fall into three classes.

1. Many infections disappear completely and patients remain cured after a few weeks

*Read at a meeting of the Out-Patient Staff of the Massachusetts General Hospital, January 25, 1922.

of symptoms. The exact percentage of these early cures will probably never be known. They are not a hospital type of case. They are most frequently seen by the general practitioner. No method of procuring accurate data is apparent to me.

2. Cases from which infection disappears within a few months or perhaps a year. We have pyelograms and complete data, obtained in the subacute stage of disease in a group of these cases, and know definitely that the duration of the disease has been but a matter of a few months. Pyelograms in these cases have invariably shown normal kidneys. In a few instances recovery has taken place at a later date after a number of years and a variety of treatments. The percentage of these latter cases has been small, and complications such as pregnancy and infectious diseases have been frequent interruptions to the course of the disease.

3. Chronic, persistent pyelitis. Compared with the incidence of infection, this group is probably small. It is likewise the group commonly seen in hospital practice. It is made up of two classes of cases: one, those with foci of reinfection such as teeth, colon stasis, etc.; the second, those cases in which there is urinary tract or pelvic stasis. Most of the stasis concerned in pyelitis is ureteral and within the pelvis.

As a working basis for the treatment of these cases of chronic, persistent pyelitis we have considered two years' duration to be a fair test for spontaneous recovery of the uncomplicated pyelitis. Patients in whom pyelitis has persisted for two years or longer, we believe to be entitled to a complete urinary tract examination. The results of two years of such investigation have shown us that pathology is found in a very high percentage of the cases. This percentage is somewhere between 75 and 85%. The problem now before the urologist is to devise a standard by which early obstructive changes in the kidney can be recognized and correction made before permanent damage, which may result in the loss of the kidney, takes place. That this destructive process is a matter of years seems to me to be certain. I am equally assured that certain of these cases can be cured by proper cystoscopic procedures or surgical procedures.

TREATMENT.

Recently three procedures for the treatment of chronic pyelitis have been added to the drug treatment on which we have previously relied. These are: (1) Pelvic lavage. (2) Over-dilatation of the ureters by method of Hunner. (3) Renal suspensions and plastics on the ureter for early renal stasis.

Drugs: During the chronic stages of the disease hexamethylenamine seems to be the ac-

cepted drug. In some instances lavage with silver nitrate is better tolerated in alkaline urine.

Pelvic lavage with some antiseptic solution, of which silver nitrate and mercurochrome give best satisfaction, has already proved its usefulness. I personally have found it most useful in the treatment of those cases in which there is considerable pus in the urine. It has been possible to reduce these to a bacilluria which is tolerated by the patient with much less severe symptoms than the purulent urine, and to produce actual cure in some. As a means of actual sterilization of the urine, its results have not been so striking.

Over-dilatation of the ureters (by the method of Hunner) I have found useful, particularly in cases of considerable bilateral pelvic and ureteral damage, in some instances associated with cystitis cystica and presumable cystic degeneration of the ureteral mucosa. In two or three instances it has given relief in cases of pyelitis which followed in onset pelvic inflammatory changes and in which there was dilatation of the ureters in the upper portions. In strictured ureters the dilatation of the stricture is of course taken for granted.

Better development of pyelograms has demonstrated the remarkable frequency of sagging of the kidneys with kinking of the ureter while the patient is in the upright position. The resultant slow dilatation of the renal pelvis is very frequently accompanied by pain. Many of these pelvises are found uninfected. In many this pathology exists previous to the onset of the infection, in others it develops after the incidence of infection. In any case such a kidney, once infected, retains infection unless some remedial measure is applied. Plastic operations, suspensions and freeing of the ureters have given us cures in early cases of this type. Plastics, after extensive damage has taken place, are usually unsuccessful.

In some instances, in spite of negative x-rays, small "ball valve" stones can be demonstrated by pyelogram and wax-tipped catheter. Removal of these greatly benefits, if not actually cures, the pyelitis behind them.

In certain instances there is very extensive damage to the ureter and pelvis with still useful and even good kidney substance above it. Often this condition is bilateral. These kidneys must be treated by palliation unless symptoms are intolerable. Palliation is chiefly through lavage.

WARNINGS.

1. The operation for suspension of the kidney has rather generally fallen into disrepute. To a great extent this reputation is deserved. By no means all sagging kidneys need tampering with. We believe that those should be considered to demand fixation only when, as

a result of function tests and pyelogram, definite stasis can be determined. That this stasis produces changes comparatively rapidly (within a year) has been demonstrated. All suspensions are now being followed in the hospital by frequent pyelograms to enable us to make a final definite statement as to whether suspension will not only give relief from pain and allow us to cure the infection of the pelvis, but will also arrest the destructive changes in the kidney.

2. It cannot be emphasized too greatly that the cure of pyelitis, as well as the existence of it, must be determined by the presence of bacteria in the urine, not by the presence or absence of pus cells and symptoms. Many patients who have had two or three attacks of pyelonephritis are considered to have had reinfections when in fact a colon bacilluria has been present throughout the intervening periods of freedom from symptoms.

Needless to say, it is my hope that as a result of study, certain cases may be recognized as capable of cure without particular treatment; that valuable means of treatment, such as pelvic lavage, may not, through misapplication to hopeless types of renal damage, receive undue discredit; that by recognizing early renal stasis we may be enabled to cure otherwise permanent colon bacillus infections and, finally, that by early recognition of these cases conservation surgery may be done to preserve from further damage good kidneys in which there is both infection and stasis. We have evidence to show that these two conditions produce destructive changes in the kidneys which tend toward pyonephrosis.

Medical Progress.

PROGRESS IN LARYNGOLOGY.

By HARRIS P. MOSHER, M.D., BOSTON.
AND GORDON BARRY, M.D.

A REVIEW of the recent literature dealing with laryngology shows progress in a good many lines. In nasal plastic surgery, both external and internal, laryngologists are applying the perfected technic of their army days. The lachrymal sac and nasal duct operation has been refined. Retrobulbar neuritis receives prominent attention. As bronchoscopy and esophagoscopy are being more generally employed, contributions of unusual cases are increasing; while an assembling of the already extensive data and its classification into types tends to standardize this work. The usual number of new suggestions in tonsillectomy instrumentalism are forthcoming. Internists are becoming increasingly conscious of infective foci as causes of systemic disease. Chronic infections about the teeth, tonsils, and sinuses which formerly were considered too mild to require operative

drainage, are now blamed for many systemic complications; and the internist who insists on the elimination of these low-grade infections is reporting resulting cures. Pulmonary complications following tonsillectomy are discussed. The value of the Schick test is more definitely outlined. The more general use of the skiagraph has checked up the dentist and the oral surgeon. Closer coöperation obtains between the laryngologist and the dentist. Finally, the radiologist and roentgenologist have offered real help in the control of both infectious and malignant diseases.

ACCESSORY SINUSES.

L. W. Dean (Iowa City) reports from an extensive experience with suppurative sinusitis in children. In most cases, the removal of the tonsils and adenoids cleared the process. But in many, turbinotomies had to be done and even radical sinus operations. All the cases were x-rayed. This was necessary not only for diagnosis but to facilitate proper operative orientation; for in small children the antrum is small and not as easily entered. In the discussion, some of the members of the American Laryngological Society, before whom it was read, expressed surprise that Dr. Dean had found it necessary to take such radical measures in children so young. The reply was that radical interference was only undertaken after lesser measures had failed, and that these extreme cases had nephritis, pyelitis, endocarditis, arthritis, or some similarly grave condition which did not yield until the sinus infection had been cleared. He thought that local severe climatic conditions were responsible for his having such stubborn cases.

Joseph C. Beck (Chicago) suggests a modified Lothrop operation for the simpler frontal sinus suppurations. He would make a small external incision and remove only a large enough table of bone to permit easy operative access to the diseased sinus and to the septum between the two frontals. He would break down this frontal septum and then stop the operation. To curette the naso-frontal duct and anterior ethmoid cells on the diseased side is only to invite later granulations and obstructing adhesions. Removing the frontal septum would let the diseased sinus drain into the well frontal sinus and out through the well and patent naso-frontal duct. This would let the diseased frontal duct clear of itself. He suggests this for the acute cases where a radical Killian operation is not called for. The reader will think of objections and advantages in this procedure. It offers a new approach.

R. C. Lynch (New Orleans) describes the technic of his radical frontal sinus operation. The method resembles closely that of Killian, with one important difference. The initial incision is the same, but then the soft tissues are

dissected down and the frontal sinus entered from below through the roof of the orbit, not through the anterior frontal table. When he has taken away all of the floor and cleaned out his sinus, he then proceeds with the ethmoidal and sphenoidal part as in the regular Killian operation. He tries to remove all the mucous membrane from these sinuses and then swabs the raw bone surfaces with tincture of iodine.

Ralph Butler (Philadelphia) reviews the literature and finds fifty-five cases of meningitis consequent on frontal sinus infection. He reports three fatalities of his own.

RETROBULBAR NEURITIS.

An interesting and very instructive discussion was opened by Harvey Cushing's paper on acoustic neuromas before the American Laryngological, Rhinological and Otological Society, in Boston, in 1920. He thinks that brain tumors are probably more frequent than abdominal tumors. Out of his series of about one thousand brain tumors, five hundred had histological verification, of which forty-five, or almost ten per cent., showed involvement of the acoustic nerve. Among other symptoms these acoustic neuromas showed choked disc and blindness, which encouraged the ophthalmologist to think that he was dealing with a retrobulbar neuritis of posterior ethmoidal or sphenoidal origin. "Only intracranial tension can produce choked discs; I am exceedingly doubtful whether inflammation of the sinuses can cause this symptom. A retrobulbar neuritis does not cause swelling of the nerve head. . . . A choked disc is due to mechanical, not to inflammatory causes, and 'optic neuritis' is a misnomer." He adds: "Unhappily we find that many of our tumor cases have been subjected to previous ethmoidal operations. . . . Otologists must see many of these cases in their incipiency, and it is important for them to realize that one out of every ten or twelve brain tumor cases belongs to this group of acoustic tumors. But in any event do not let us be misguided into the belief that no harm is done to patients with threatened loss of vision due to optic neuritis if they have their turbinates removed and sinuses indiscriminately opened. No greater discredit could possibly come to rhinology as a specialty than the sort of loose thinking and writing which has been given to this subject."

In discussing the paper G. E. Shambaugh (Chicago) remarked on "the prevalence of looseness in our thinking about, and work on the nose. If there is intranasal trouble there should be enough evidence for operative interference in the nasal sinuses or in the skiagraph."

Since this paper, several articles have appeared on retrobulbar neuritis. W. E. Saucer (St. Louis) says that erroneous operative work in these cases may be ascribed to errors in judg-

ment rather than to carelessness. J. W. Jervey (Greenville, S. C.) refers to a case of retrobulbar neuritis which cleared after removing a cystic middle turbinate and irrigating a large quantity of pus from the antrum. H. B. Lemere (Omaha) and J. A. White (Richmond) also reported each a case which cleared promptly under antrum irrigations. The late Christian Holmes (Cincinnati) is quoted as believing that forty per cent. of all eye diseases had their origin in the nasal accessory sinuses. Onodi has written exhaustively on this subject.

The best recent papers on the subject found were by Leon A. White (Boston), appearing in the *BOSTON MEDICAL AND SURGICAL JOURNAL*, on August 24 and October 20, 1921. This writer feels that Cushing's criticism of the unwarranted opening of accessory sinuses, in loss of vision due to intracranial lesions, is just, but fears that the pendulum will swing to the extreme of too great conservatism unless an effort is made to discover a happy medium. In these papers he reviews thirty-three of his own cases of retrobulbar neuritis and quotes from other authors. Space does not permit extensive quotations; a few will help to support the argument. De Schweinitz says: "The most important group of ocular complications of nasal sinus disease are those in which there is sinusitis without external signs or orbital inflammation; there is an optic neuritis or a neuro-retinitis without marked ophthalmic changes, simply a central scotoma. The scotoma may be unilateral—the more usual condition—or bilateral, and most frequently depends upon disease of the posterior ethmoidal cells or the sphenoid sinus. . . . The prognosis of optic neuritis depends upon the cause and the duration of the process. If the focus of disease, for instance, in the accessory sinuses can be removed, vision may be saved and edema and inflammation will subside. Untreated optic neuritis almost always produces blindness." Arnold Knapp says: "Optic neuritis occurs in two forms; one during the course of suppurative sinusitis, the other where there is a typical retrobulbar neuritis and the rhinoscopic examination is negative. In the latter cases exploratory operation reveals a latent infection." Onodi adds: "I must emphasize this fact, that in those cases of sight derangements in which the oculist cannot confirm the cause, and the suspicion of nasal connection exists, even though the findings be negative, it seems best to take explorative measures and to seek the cause in the accessory sinuses." Paul Roamer says: "Frequently the trouble begins with an acute disturbance of vision, usually a central scotoma, after which the neuritis appears. When we find no plausible and satisfactory explanation of an optic neuritis, the accessory sinuses must be carefully

examined, for in many cases immediate operative treatment can save a part of the vision."

In reviewing the clinical pathology of his own cases White "discovered that the one almost constant finding was enlargement of the turbinate tissue adjacent to the sphenoidal ostium. It was also quite usual to have a posterior deflection of the septum crowding the already poorly ventilated regions of the posterior sinuses. . . . Pus was rarely found at operation; and in many cases the roentgenograms were practically negative. . . . Earlier writers considered the anatomical relations of the optic nerve to the accessory sinuses to be the chief etiological factor. Later ones claimed the trouble was transmitted by the soft tissue. No one etiological condition is responsible for all cases. Purulent infection accounts for a few. A chronic sinus infection would be less likely to extend to the optic nerve. The size and position of the middle and superior turbinates explain the etiology in a large number. Poor ventilation and faulty drainage are all important factors. . . . Cultures when taken all gave some growth, principally the *staphylococcus albus*." White recommends "the opening of the accessory sinuses for sudden loss of vision, after the exclusion of other causes, even with negative nasal findings. As the inflammation incident to this infection is frequently of the exudative but non-suppurative type, the roentgenograms are practically negative." A toxemia from other possible infected foci should be carefully considered before an operation on the sinuses is resorted to.

An operation, if done, should be prompt: "The optic nerve may be permanently damaged within eleven days." White finds that a radical exenteration of the ethmoids and the sphenoids is unnecessary and increases the operative risk unjustifiably. "In the method I advocate, only enough of the turbinate tissue needed to obtain access to the front wall of the sphenoid is removed. The nasal portion of the anterior sphenoidal wall is taken down and only the posterior ethmoid cell opened. There is no indication for exenterating the ethmoids unless they are so diseased that they need removal irrespective of the visual disturbance. The ventilation and depletion incident to the operation outlined will relieve the pressure and infection about the nerve." No nasal packing is used. If taken early, visual improvement in these cases is prompt.

LYMPH DRAINAGE OF SINUSES.

Mullin and Ryder (Colorado Springs) report an interesting piece of research work done on the maxillary sinus in rabbits and the frontal sinus in rats, to determine the lymph drainage of these sinuses. India ink was used as the experiment fluid. They found that there was al-

most no absorption of the ink through the uninjured mucous membrane surfaces of the nose. When injury to the mucous membrane of the nose or sinuses permitted fluid absorption, the lymph channels carrying it were along soft tissue, not through bone substance. A free anastomosis existed between lymph channels. After absorption of the fluid from the antrum, it passed forward and down to the submaxillary nodes, and backward and down to the retropharyngeal nodes. From these it passed to the deep cervical nodes and thus into the venous circulation. Rarely the fluid reached the subparotid and retrosternal nodes. The course of the fluid absorbed by the frontal sinus membrane was the same. If the fluid in this sinus was under pressure, it also passed back through the posterior frontal sinus wall to the dura. From the meninges, the fluid passed to the submaxillary and retropharyngeal nodes.

The moot question of direct involvement of the lungs from the lymph stream is raised and answered in the negative. In these experiments the fluid passed to the lung: (1) by inhalation from the nose, (2) through the lymph channels into the venous circulation, then direct to the heart and thence to the lung through the blood stream. In contradistinction to this view, Freudenthal thinks the nasopharynx the chief site of external infection entering the system and that it is carried from there to the apical pleura by the lymph stream. Other writers share Freudenthal's opinion.

THE LACHRYMAL SAC.

J. J. Gilbert reports the results in forty-five cases where the tear sac was removed. No case was free from epiphora one and a half years after the operation. In fifty per cent. it lasted two to five years after the operation.

Increasingly, different writers are advocating the establishment of drainage into the nose above the inferior turbinate to care for these rebellious cases of dacryocystitis or nasal-duct stricture. The ophthalmologist is abandoning the cystectomy for this more successful procedure. C. F. Bookwater reports fifty-five cases with only six needing any considerable after-care, on account of granulations in the nose. He does the entire operation from within the nose. First a muco-periosteal flap is turned down in front of the middle turbinate. Then the bone is pierced with a West chisel and enlarged with a punch. The sac can then be reached with a curved forcep, pulled into view and incised along its entire length. A proper sized round hole is made in the flap opposite the sac, and then the flap is replaced. Clifford B. Walker advocates a similar method. He, however, considers the flap unimportant. He enters through the bone with a burr, and removes the nasal

wall of the sac. Eighty per cent. of his cases gave perfect results.

H. P. Mosher (Boston) writes a comprehensive article on "re-establishing intranasal drainage of the lachrymal sac" in the July, 1921, *Laryngoscope*, in which he reviews his research work and experiences of the past five years. Twelve cases were operated upon by the intranasal method, twenty-five by the combined external and internal operation. As to the relative value of the internal or the combined external and internal methods, Mosher says: "Either operation will cure suppuration in the sac and both will lessen or abolish epiphora. Both operations are still on trial as to the permanency of their results. The intranasal operation is a blind procedure; there is constant risk of infecting the orbit. There is little such risk if the operation is done by sight by the combined method. In old-standing, difficult cases the combined method offers the best chance of success." The matter of the scar has caused some objection. With experience, the operator will be able to make this as invisible as the very fine Killian scar. After reporting the interesting phases of his thirty-seven cases, Mosher takes up carefully the anatomy of this region, illustrating it with original drawings. The descriptive anatomy and the detailed account of the operative steps will materially help him who would familiarize himself with this operation.

The operation is described in four steps. The patient is under ether anesthesia and in the upright position. In the first step, the anterior end of the middle turbinate is removed intranasally. If the septum crowds over to this side, enough should be resected submucously to remove this obstruction. This part may be done under cocaine a few days before. The second step exposes the lachrymal sac through a vertical incision over the ascending process of the superior maxilla, and frees it from its bed. Third, a bony opening, about the size of the sac, is made into the nose immediately opposite the sac. Fourth, the inner half of the wall of the sac is removed, and also the inner wall of the nasal duct. Over-lapping tags of middle turbinate and ethmoid cells are trimmed flush with the opening. A light intra-nasal packing of vaseline gauze is applied to the anterior ethmoid region, and the external incision is sutured. In his after-care, he leaves a pressure bandage on the eye for two days, removing it daily to cleanse the eye. The nasal packing remains one to two days, rarely four days. No probing has been necessary. If any sign of puffiness appears in the wound, it is opened at the lower half. Even in suppurative cases healing is often by first intention. As to the results at date of reporting he says of one series of eighteen, that fourteen were completely cured

of epiphora, and the other four gave partial success. Of another series of eleven, ten had their epiphora stop from within three days to six weeks after the operation, not to return. Refinements and changes will develop in the technic but at present intra-nasal drainage of the sac and by the combined operative method seems the safest and surest means to cure this difficult type of case.

THE TONSILS.

The tonsil continues naturally to hold a prominent place in laryngological literature. Various new instruments are offered. The more interesting papers deal with two diametrically different viewpoints; one, the question of those cases where operative work fails to help; the other the happy results from tonsil removal. In the first group, Grant Selfridge (San Francisco) pertinently reminds us that "all diseases between fallen arches and alopecia areata have been attributed to the tonsils, whether diseased or not." After several operated children had returned to his office, showing no improvement, he began carefully to investigate the cause of these surgical failures. From extensive investigation and inquiry he concludes "that the evidence points to an interrelation of the tonsil with the ductless gland system, and that the failure to recognize such relationship helps to explain, to my mind at least, the cause of failures, such as have been encountered by myself." He does not deery the operation in properly selected cases, but he urges more careful initial study of each case. "Any sign of disfunction in the ductless glands should be treated first. He quotes McGarrison's recent work on "The Thyroid," which gives mouth-breathing, adenoids and lymphatic enlargement, and slowness to talk, as symptoms of hypothyroidism. Leonard Williams says "Adenoids and enlarged tonsils occur in children who have an inadequate supply of thyroid secretion." In his metabolic studies in southern Germany and Switzerland, Janney, of Santa Barbara, frequently noted tonsils of enormous size in cretins. "The giving of thyroid extract brought about marked reduction in size and frequently almost complete disappearance of the tonsils." Bordley, of Baltimore, suggests that the frequent hypertrophy of other lymphoid tissue in Waldeyer's ring after tonsillectomy is "nature's effort to give to the economy a needed substance which surgery has removed." Several authors who found an association between status lymphaticus and hypertrophied tonsils and adenoids are quoted. He concludes with a plea for greater discrimination in the selection of operative cases.

Other papers deal with the other side of the picture. S. S. Watkins, writing in the *Kentucky Medical Journal*, gives a list of indications for tonsillectomy almost as inclusive as

the above quoted writer suggests. Gastritis, bronchitis, tubercular adenitis, infectious arthritis, endocarditis, chorea, acute nephritis, fever without cause, and anemia are in the list; while strangely enough he finds that cases of chronic suppurative otitis media are not helped by operation. F. E. Shipway (*American Journal of Surgery*, January, 1921) gives the results of ninety-four tonsil and adenoid operations in their cardiac clinic. Lymph nodes were present before operation in fifty-nine per cent., reduced in forty-one per cent., no change in seven per cent. Some of the large nodes disappeared in six days. Rheumatic fever had been present in forty-two cases. There was no recurrence in eighty-four per cent. Chorea was present in forty cases with no recurrence after operation in fifty per cent. Sixty-one cases had bone or joint pains and showed no recurrence in seventy-seven per cent. Seventy-three per cent. of the ninety-four had had recurrent tonsillitis before operation while only seven per cent. had any sore throats after operation. If the reader is connected with a large ear clinic, he will doubtless recall that less old chronic discharging ears have been crowding the clinic since the tonsil operative work on the school children has been more widespread. Interesting data are beginning to be compiled by the insurance companies which find that the risk of a man with a history of rheumatic fever is better if his tonsils are out.

LUNG ABSCESSES FOLLOWING TONSILLECTOMY.

It appears that the first case of lung abscess following tonsillectomy to be reported was by C. W. Richardson, of Washington, in 1912. Bassin, of Paris, followed, in 1915, with a series of nineteen cases; and Manges, of New York, in 1916, with six cases. Many more have followed. Fisher and Cohen (Philadelphia) report five more. Reviewing the literature they find a total of seventy-six cases of pulmonary complications following tonsillectomy, many of them fatal. Seventy-four were operated upon under general anesthesia, and so far as known, ether was used. All but four occurred in adults. Where physical findings were available, the favorite site of the lesion was stated to be the right lung, either the middle or lower lobe being involved. Some authors claim that the motor-driven ether apparatus is responsible for this recent increase in pulmonary complications. Fisher and Cohen think that emboli reach the lung through the lymph or blood stream chiefly. Richardson, Carmody, Lynah, and Herr all think that these complications are due to the aspiration of septic material during the operation. Richardson has prevented this accident by having the head lower than the larynx and using suction. Richards, of Fall River, claims that the position of the patient has nothing to do with the matter. He has had three

cases, and in both upright and prone positions. The careful use of the suction apparatus avoids trouble with him. Lynah states there have been nine lung abscess cases following tonsil operation at the Lenox Hill Hospital. By prompt bronchoscopic treatment he was able to materially hasten convalescence. Most of these cases get well, while pulmonary embolic cases usually have a speedy and fatal end. Carmody (Denver) thinks that a light ether anesthesia prevents aspiration of blood and septic material, while Welty (San Francisco) thinks a patient bleeds much less under complete anesthesia and only thus can lung complications be prevented. Carmody thinks a motor-driven apparatus is advisable and lays especial stress on the warning of the ether vapor. G. F. Keiper (Lafayette) quotes Glendenning as saying that the motor-driven ether apparatus is responsible, though Keiper himself uses such. Cutler and Hunt, who are general surgeons, report "that in from thirty to fifty of all kinds of cases in which operation is performed, one patient develops lung complications, and that one in from one hundred and fifty to one hundred and eighty-five patients dies from such complications." Keiper thinks that the presence of an acute infection at the time of operation accounts for the lung abscess. Margaret Butler (Philadelphia) thinks that a previous history of lung involvement would be found in most of these cases. Fisher (Philadelphia) argues that this accident does not occur when the patient is operated under local anesthesia, and urges that all adult cases be so operated. Barnhill (Cincinnati) reports a case of lung abscess after a tonsillectomy under local anesthesia.

TONSIL ANESTHESIA.

As regards the use of local or general anesthesia for tonsil operative work there seems an equal diversity of opinion. The Boston School still prefers general ether anesthesia and the upright position, though there are exceptions to this. Most of the New York men seem to prefer ether, but in the prone position. Some prefer ether but with the head extended back below the level of the table. The Western men have used local anesthesia more than the Eastern. The local injection of one-tenth of one per cent. cocaine has been the preferred method at the Mayo Clinic. Quite a number are espousing the use of gas-oxygen anesthesia, especially in nephritic and diabetic cases. The disadvantage they find is in an increased blood pressure and more operative bleeding.

In connection with the subject of anesthesia may be noted two articles, one by F. E. Shipway on "intra-tracheal ether" in which he reports nine hundred and thirty cases, four hundred and seven of which were for operations on the face, sinuses, mouth, or pharynx. This series showed no post-operative septic pneu-

monias, six cases of post-operative bronchitis, no cases of post-operative shock. There were seven deaths and all in cases of advanced malignant disease. One of the advantages mentioned was the freedom from the danger of sucking in blood. . . . The other article was by Quimby Gallupe in which ether anesthesia was gained by the injection of a solution of ether into the vein. This was done for an inguinal hernia operation in a sixty-six year old alcoholic in whom the usual ether anesthesia was thought to present a grave operative risk. Seven parts of ether were used to one hundred of isotonic salt solution at room temperature. This was introduced into a vein, first at the rate of five cubic centimeters per minute, but without effect. Carefully the amount was increased to ten cubic centimeters, and the patient became jocose. When fifteen cubic centimeters per minute were reached, a normal complete ether anesthesia was obtained. Twenty cubic centimeters was tried but this proved too much, and the dosage was dropped back to fifteen. The operation lasted twenty minutes and was uneventful. The patient came out of the anesthesia ten minutes after the intravenous ether solution was stopped. The writer claims that this method permitted a careful control, and thought it might prove helpful in certain types of cases.

Watson Williams, in an editorial in the *British Medical Journal*, reports the morbidity following the operative removal of tonsils and adenoids to be four times as great in out-patient as in house cases, and this in spite of carefully printed instructions which the out-patient cases were given. He thinks the reason is that these were sent home a few hours after operation while the house cases were kept in at least over one night. He deplores the crowded hospital conditions which permit so temporary a hospital sojourn.

LARYNGOSCOPY.

In surgery of the larynx, Lynch (New Orleans) reports good results in the removal of intra-laryngeal tumors by his suspension method. In discussion it was remarked that where Lynch's skill could handle this delicate and difficult task, the average laryngologist would probably continue to rely on the external route.

Jackson (Philadelphia) reports on removing one or both vocal cords by direct laryngoscopy in cases of bilateral vocal cord paralysis where the lack of muscular resistance causes the cords to suck together in inspiration and shut off the breathing.

Lynch has contributed to our armamentarium with his small tracheal tubes and cautery, and his graduated sounds for dilatation of laryngeal stenoses. These are the results of his un-

matched experience as surgeon in charge of the laryngeal diphtheria cases in Greater New York.

For whooping-cough, Yankhauser (New York) injects four per cent. antipyrin on the vocal cords. He finds that this treatment may be almost considered specific, for the lessening of the spasms is prompt, and a rapid convalescence follows. In some cases, one injection was sufficient, in others, several were necessary. These are given daily. The author calls attention to the high mortality in this disease and invites the laryngologist to employ this means of lessening its severity.

T. W. Moore (Huntington, W. Va.) advocates the more frequent use of intra-tracheal injections. He prefers the indirect method of injection, using a throat mirror. Two per cent. guaiacol in liquid petrolatum has given much relief to his tubercular cases. Guyot and Bull use intra-tracheal injections daily for a period of three or four weeks in their laryngeal or pulmonary tubercular cases and claim remarkable results. They use olive oil with gomenol oil (5:100), three to five cubic centimeters at each injection.

W. Freudenthal (New York) read an exhaustive paper before the American Triological Society, in June, 1920, on advanced laryngeal tuberculosis. The importance of having the laryngologist treat these cases was emphasized. He injects an orthoform emulsion for the dysphagia and finds it not only comforting but healing because it enables the patient to eat more heartily. He insists that tuberculosis may be primary in the larynx. He deplores the removal of tonsils in latent tubercular cases as being likely to reawaken the process. As to the use of intra-tracheal injections in the gassed soldiers, Beek (Chicago) said that its effect appeared to be transitory, and that the men objected to it.

BRONCHOSCOPY.

A good many articles deal with the removal of foreign bodies from the bronchi. H. M. Taylor (Jacksonville) adds a new foreign body to the long list when he reports the removal of sand spurs which are prevalent in his region. Jackson, the dean in this work, presented an exhaustive paper before the American Triological Society, in 1921, in which he takes up the mechanical problems encountered in the extraction of foreign bodies in the bronchi and the esophagus. With an experience of eight hundred and ninety-one cases behind him, there is none better fitted to deal with this subject. Careful illustrations and an exhaustive discussion make this a valuable addition to the bronchoscopist's library. In another paper he points out that cases which were formerly considered hopeless are now proving possible of solution. He feels that with patience and care, and with

a thoughtful consideration of the mechanics in the given case, any foreign body that entered the lung by the natural channel can be taken out by the same channel.

Jackson also contributes a valuable article on the symptoms of foreign bodies in the air and food passages. He points out that frequently a foreign body may enter the bronchi with little or no irritation or coughing at the time of its inspiration. It may be weeks after the entrance of the foreign body before irritative symptoms develop. He dwells as follows on peanut kernels in the bronchus:

1. Initial laryngeal spasm is almost invariably present with foreign bodies of organic nature, such as nut kernels, peas, beans, maize, etc.

2. A diffuse purulent laryngo-tracheo bronchitis develops within twenty-four hours in children under two years.

3. Fever, toxemia, cyanosis, dyspnea and paroxysmal cough are promptly shown.

4. The child is unable to cough up the thick mucilaginous pus through the swollen larynx and may "drown in its own secretions" unless the offender be removed.

5. Lung abscess rapidly forms.

6. The older the child the less severe the reaction.

7. In the early stages an acute obstructive emphysema is present, manifested by: (a) limited expansion, (b) muffled tympanitic percussion note, (c) markedly diminished or absent breath sounds on the obstructed side, (d) many râles and harsh breathing on the free side.

8. The radiograph confirms these signs by showing (a) greater transparency on the obstructed side, (b) displacement of the heart toward the free side, (c) depression and limitation of the diaphragm motion on the obstructed side.

Pulmonary abscesses are discussed by Lynah (*Jour. A. M. A.*, Nov. 12, 1921). The author has made use of a mixture of oil and bismuth which he injects into the lung abscess through the bronchoscope. This technic was primarily to help the roentgenologist in mapping out the abscess, but was found to coöperate with the secondary x-rays toward healing. The causes of the author's thirty-eight cases are instructive. "Nine followed the sojourn of foreign bodies: eight, tonsilleotomies; ten, post-diphtheritic abscesses; two, lobar pneumonia; one, an operation for gallstones; one, necrosis of the jaw. Three were of indefinite cause, probably post-influenzal. Two followed the aspiration of sea water, one was due to lympho-sarcoma, and one was not diagnosed, but had similar bronchoscopic findings." He finds that early operative interference gives the best hope of success; that bronchial stenoses should be kept open by dilatation in order to secure lung

drainage; that fungating granulations should be removed and a ten to twenty per cent. silver nitrate solution applied to the area. Cavities can best be evacuated by suction. Oily solutions when injected into lung cavities are not coughed out as promptly as watery solutions. The evacuation of the pus from these lung abscess cases gives the patients such relief and the procedure is attended with so little discomfort that some beg for more frequent treatments.

THE ESOPHAGUS.

In a paper before the American Triological Society, in 1920, H. P. Mosher gave the results of his researches in the anatomy of the esophagus, particularly that of the cardiac end. Plaster casts and anatomical dissections of thirty adults and sixty baby cadavers furnished the material. Among other interesting points, Mosher calls attention to the constriction action of the crura of the diaphragm, especially to the left; to the varying length of the sub-diaphragmatic esophagus, and to the pressure from in front of the left lobe of the liver. The esophagus has the liver on the right, in front and often on the left, so that it runs in a tunnel of liver. The chief points brought out by this study are the great variability of the esophagus in the adult, and what is a new point, its great variability at birth. In the adult a globular dilatation of the lower end of the esophagus just above the diaphragm caused by the pressure of the liver from the front and the constriction of the left crus from behind and from the left side is very common. This dilatation is often capped by an annular stricture. This stricture may be due to a former peptic ulcer of the lower end of the esophagus, or it may be a remnant of the segmental formation of the esophagus in some of the lower vertebrates."

J. Guisez (Paris) refers to this same annular stricture, which Mosher describes as a "crescentic mounding into the right half of the mouth of the esophagoscope." Guisez calls it a "semilunar valve partially closing the esophagus, and always found at the same spot, on a level with the opening in the diaphragm." This valvular condition, he thinks, causes an obstruction which is diagnosed as spasm of the esophagus. Food is retained more or less at this point, and sets up an irritation, increasing the spasm, which is only secondary. Treatment suggested is to soothe the irritation by restricting foods to non-coagulating fluids; supplemented by alkaline lavage, measures for dilatation, and circular electrolysis of the valve formation.

Seth Hirsch, director of the x-ray department of the New York Bellevue Hospital, reports two cases of "congenital atresia of the esophagus" and summarizes his review of the literature as

follows: "Up to July 1, 1920, one hundred and forty-six verified cases of atresia of the esophagus have been reported in infants. The commonest type is a blind upper sac, a lower sac opening into the trachea above the bifurcation; one hundred and three, or seventy per cent., are of this type. Accompanying abnormalities of other parts of the body are common. The most comprehensive explanation is failure of closure of the tracheo-esophageal septum." The most exhaustive study of this condition is by E. D. Plass from Johns Hopkins in 1919, an elaborate article covering the period from 1703 to 1916, with eighteen pages of bibliography.

Diverticula of the esophagus: A. D. Bevan (Chicago) differentiates between traction and pulsion diverticula. The former "may occur at any point, especially within the thorax, and as a rule they are caused by cicatricial contraction of some old inflammatory process drawing the wall of the esophagus outward and making more or less of a funnel-shaped diverticulum." The latter "always occur at exactly the same point, presenting themselves at the junction of the esophagus and the pharynx in the median line posteriorly. At this point there is a triangular area where the oblique muscles of the pharynx and the transverse circular muscles of the esophagus meet, leaving a small area not covered with musculature but simply by a subcutaneous layer." The neck of the pouch always remains comparatively small; the pouch itself may reach a size sufficient to hold twelve ounces. The cure is operative. Local anesthesia is invariably used by this author. A six-inch incision just in front of the sternocleidomastoid muscle takes one down to this region, with the large blood-vessels of the neck outside and the thyroid gland on the inside. The inferior thyroid artery is frequently met; if in the way, it is ligated and cut. The neck of the pouch is readily found by having the patient swallow. Usually the diverticulum lies in loose areolar tissues and can be easily pulled into view. It looks like a hernial sac. If no larger than a thumb, it is simply invaginated into the esophagus with three purse-string sutures. If larger, he cuts away the distal half, or runs sutures the length of the sac, puckering the distal half into the proximal, and then that in turn into the esophagus. A sac longer than the thumb when invaginated may be regurgitated and obstruct the breathing. Previously, leakage from the wound had made a high mortality, but the use of the skiagraph and perfected technic has served to establish the diagnosis and gain a cure in a far higher percentage during the past ten years.

Thomas Hubbard (Toledo) discusses "esophagismus," and considers it due to reverse peristalsis. He thinks it may be psychic, and to be referred in its nerve paths to the pharyngeal plexus. Lund and Foley (BOSTON MEDICAL AND

SURGICAL JOURNAL) call attention to the fact that bleeding from a varicose vein in the lower esophagus may be the cause of blood in the stomach, rather than bleeding from the gastric ulcer. There is frequently found a plexus of veins circling the lower esophagus, and this area is somewhat prone to bleed. In old patients, with cirrhosis, profuse hemorrhage may occur from this source.

Caustic burns: Jackson (*Jour. A.M.A.*, July 2) discusses esophageal stenoses following burns. Their frequency is graphically illustrated by a picture of seven children, all of whom were receiving treatment at the same time for this condition at the Jefferson Hospital. He calls attention to the labels on these caustic lyes. The statement that they are a poison is likely to be tucked away inconspicuously in a corner. These lyes can be bought in the grocery store and are usually kept on the open kitchen shelf. On the other hand, drug poisons are required by law to bear conspicuous labels, and they are usually kept in a cabinet where the child in the house cannot reach them. He pleads for remedial legislation which will compel a more noticeable warning of the dangerous nature of these preparations. C. F. Theisen reports a case of ammonia burn which had five strictures. These were successfully dilated with flexible lead bougies.

Foreign Bodies: Jackson's paper on the mechanism of extracting foreign bodies from the esophagus and bronchi has been referred to. There are many other case reports on the diagnosis and removal of unusual foreign bodies.

Esophagoplasty: Two articles deal with reconstructing the esophagus. Dirschner (Berlin) recommends antethoracic reconstruction. He finds that ten cases have been published. He demonstrated by cadaver experimentation that the stomach could be cut free from the cardiac end of the esophagus, drawn out into a sausage shape, brought up in front of the chest, and sutured to the esophagus at the neck, the skin being sutured over the whole. He performed this operation on four; two with cancer succumbed in a few hours, one lived two weeks, to die of pneumonia, and one had completely recovered and was living. The posterior extrapleural route is recommended by Howard Lilienthal (New York). The operation was done in several stages. The ninth rib was resected, the sixth, seventh, and eighth were cut near the spine. The cancer, for which the operation was done, was removed through this opening two weeks later. This wait allowed a sealing off of the mediastinum. Then a skin flap was cut from the back and formed into a tube which was later swung into place and attached to the cut ends of the esophagus. A successful result was obtained, the patient swallowing soft foods normally. Occasional bougieing had been necessary.

DIPHTHERIA CARRIERS.

Moss, Guthrie and Marshall (*Johns Hopkins Bulletin*) found that the inoculation of avirulent diphtheria bacilli into healthy human throats would create diphtheria carriers. Two of these experimental cases lasted fifteen months. Previous antitoxin injections made no difference. There were no resulting objective changes in the throats. No diphtheria cases resulted from these carriers, nor did the avirulent diphtheria bacilli become virulent by their sojourn in the host. The paper concludes that avirulent diphtheria bacilli have no pathogenic importance to man; and that a diphtheria carrier does not constitute a menace to the health of the community.

DeLille and Marie (*Presse Médicale*, Jan., 1921) made a series of tests on the children in their clinic, with the following results: Age three to six years, reaction positive in fifty per cent.; age six to ten years, reaction positive in forty-seven per cent.; age ten to fifteen years, reaction positive in twenty-eight per cent. They found that antitoxin should be injected only into cases giving the positive Schick test reaction. Many cases of diphtheria carriers gave a negative Schick test. Where the test was positive, antitoxin helped; where the test was negative, the antitoxin gave no benefit.

RHINOPLASTY.

V. P. Blair (St. Louis) thinks that "the total restoration of the nose, while an interesting and thoroughly sporting surgical procedure, has in civil practice a very limited field compared with the correction of the more common nasal defects and incongruities." Unless the reconstructed nose can be made both functionally and cosmetically acceptable, it is better to give the patient a prosthesis. "The two essential advances in rhinoplasty during the war were the universal recognition that the lining is as essential as the external covering and, to a very much less degree, that the reconstructed parts should be cut from carefully made patterns. The most dependable tissue for covering the nose, and one which can also be used for the lining, is the skin and subcutaneous tissue of the forehead. The resulting defect can be immediately filled in by a full thickness skin graft from the abdomen. The next most adaptable tissue is skin from behind the ear, brought up on a long flap taken transversely from under the chin." For the supporting structure, he swings forward a piece of septum, or inserts a piece of bone or cartilage, or does a previous implantation of cartilage in the flap which he later swings into place. A bone transplant does not survive as well as a cartilage transplant, particularly if perichondrium is in contact with two-thirds of its circumference. The Thiersch graft makes the simplest lining, but the writer

thinks that the graft of the future will be a full thickness, free skin or mucous membrane graft.

Pratt (Minneapolis) discusses refinements in septal plastic surgery. In case of an old septal perforation which he wishes to close, he frees part of the inferior turbinate and brings this over into the perforation, freshening the approximating edges. When union has been obtained, a second operation severs the pedicle attachment. If the perforation is a fresh operative one, he scarifies the nearest turbinate surface and packs the septum over against this. When local healing has been secured, he cuts the turbinal mucous membrane free from the turbinate, and the septum now swings to the mid-line, its perforation filled in by the transplant.

During the war the surgeons who were fortunate enough to see Giles' oroplastic work in England will recall the ingenious uses he made of flaps taken from turbinates and septum for reconstructing a columella or ala or sunken nasal bridge.

OROPLASTY.

In operating for hare-lip, F. B. Moorehead (Chicago) prefers the age of from six to ten weeks. The first requisite is that the diet shall have been properly regulated. Feeding should be with a spoon or dropper. The nipple should not be used before or after operation. An electric vaporizer and aspirator is the best means of anesthesia. The operation divides itself into three parts. First, the jaw arch is to be exposed and the longer segment moulded back and fastened with wire to the shorter. This is very essential, as it gives a proper foundation for the subsequent steps. This does not disturb the posterior jaw alignment or the anterior teeth. Second, the defective nostril is brought into place and sutured. Third, the lip is cut to an equal and proper length, and sutured. If the first two steps are properly done, the third is simple. No undue tension should be present. No external dressings are employed. The wound is sponged once or twice daily with fifty per cent. alcohol and dusted with Thiersch powder. On the third and subsequent days, the sutures are removed until they are all out by the seventh or eighth day. The operation for the cleft palate is postponed until the twelfth or fifteenth month. His particular recommendation in this is to split the soft palate, rather than cut the nasal mucosa free from the posterior bony palate margin. Splitting preserves the blood supply as well as relieving tension.

In an article on the same subject, George V. I. Brown (Milwaukee) cautions against making the lip too long. Such a lip tends to grow worse, and is harder to correct than too short a lip. He also cautions against injuring the developing tooth germs, with consequent per-

manent injury to later symmetrical growth.

V. P. Blair (St. Louis) prefers to operate on hare-lip during the first twenty-four hours of life. The danger of shock appears to be the least at this time. Truman W. Brophy (Chicago) insists that the anterior arch should be approximated at the time of operation, and claims that the doctrine that the sutured lip does this is unsound. He finds that the muscular action of the lip on the jaw bony parts is a swinging one in which the anterior portions are brought together but the posterior tuberosities are swung apart making posterior and soft palate closure that much harder. In another article, he reports a mid-line cleft of the palate, a rare condition.

In adult cheiloplasty, V. H. Kazanjian (Boston) tells of conclusions gained from his extensive army experience. Though war conditions are not now present, more opportunities for selection and rejection of methods which might be applicable to civil life offered than could otherwise come to any man in a lifetime. A few pertinent sentences follow. "Whereas the closing of simple tears or lacerations not involving bony injury and the preliminary suturing of radiating wounds is often helpful, no serious plastic operation ought to be attempted before sepsis is controlled and the maximum vascularity of the tissues is obtained. Scars not only injure cosmetic results but seriously affect the blood supply of the operative field. It is often necessary to excise such scars to have healthy tissue approximated, and then wait for this to heal before the main operation is attempted. I cannot too strongly emphasize the utter futility of attempting the reconstruction of the soft tissues until either the underlying supporting structures have been put into proper relation with each other and with the face as a whole, or else adequate mechanical appliances accurately reproducing the lost bony tissue have been substituted. The plastic reconstructing flap may be taken from neighboring or remote tissues, preferably the former. There is a great temptation to approximate the borders of the wound, instead of making flaps, but results do not justify this method for more than slight injuries."

Benign Mandibular Tumors: The *Journal A. M. A.* of Dec. 10, 1921, gives four articles on tumors of the jaw. R. J. Wenker (Milwaukee) and G. M. Dorrance (Philadelphia) agree with the Malassez theory as to the etiology of dentigerous cysts. They start with epithelial cell rests and in a chronic process proceed through the three stages of the death of the tooth pulp, development of a granuloma, and the elaboration of bacterial or other toxins. Joseph A. Pettit (Portland) considers the cause of most oral tumors to be traumatic or bacterial. In comparison with benign tumors, malignant tu-

mors of this region are relatively infrequent. The operative approach is preferably through the mouth. A careful removal of all epithelial cells is sought. Preference is against closing the wound on account of the probability of retained infection. Bloodgood's advice to use the cautery for the removal of these non-malignant tumors is deplored. Dorrance calls attention to the fact that the most frequent site of occurrence is at the junction of the premaxillary and lateral processes of either the upper or lower jaw.

Miscellaneous: Gilbert Chubb (*Brit. Med. Jour.*, Jan. 8, 1921) offers an ingenious method for the cure of salivary fistula. Carefully dissecting the fistula free, together with a small button of skin, he draws this button through an incision through the cheek and sutures it to the buccal surface. The fistula then empties into the mouth as is desired.

F. S. Hopkins reports a case of calculus in the submaxillary gland. He was able to find only twenty cases in the literature. Most authors recommend the external approach, but he reached the calculus through the floor of the mouth and thinks this method preferable.

E. G. Slesinger reports an infected submaxillary gland in an infant four days old. On pressure, brown semipurulent fluid escaped from Wharton's duct. The patient's condition became so grave that a radical external removal of the infected gland became necessary, with an ultimate cure.

H. A. Potts (Chicago) discusses the grave risk many dentists take in the extensive removal of teeth which are covered with septic debris. Blair joins in deploring dental extraction under septic conditions and refers to twelve or more deaths from this cause coming under his personal observation.

Oral Bacteria: A. L. Bloomfield (Johns Hopkins) reports an exhaustive study of the flora of the normal mouth in six cases as a basic study of the bacteria of colds. The tests were made repeatedly, over a considerable period of time. One group of bacteria were always present: a non-hemolytic streptococcus and a gram-negative coccus. Many other organisms were recovered but their presence was found to be transient, usually disappearing in a few days. The conclusion arrived at was that the upper respiratory passages offer an unfavorable environment for foreign organisms.

J. C. Kirby (Boston) reports a case of cervical abscess the result of a phlebitis coming from a peritonsillar abscess. He thinks this phlebitis similar to those cases reported by Mosher, who found an analogy between an internal jugular phlebitis of tonsillar origin and a lateral sinus thrombosis of mastoid origin.

Stammering: E. Tompkins says that stammering is brought on by accident and is continued by fear. This fear of stammering must be

controlled before relief can be obtained. Smiley Blanton (University of Wisconsin) has been able to shed further light on stuttering by the study of fifty-two war neurosis cases of this type. He concludes that "disorders of speech are due to the lack of ability to adapt oneself emotionally to social situations, or to a faulty motor mechanism, either hereditary or acquired." Curative measures aim at (1) the underlying cause, (2) general hygiene and (3) muscle training. He urges that the medical profession interest itself more earnestly in these unfortunates.

RADIUM AND X-RAY IN MALIGNANT TUMORS.

With the more general introduction of the use of radium as a therapeutic and post-operative healing measure, many writers are reporting operative cures where they had previously failed, while others find that too much enthusiasm has led to disappointment. There is disagreement as to its efficacy in laryngeal and esophageal cancer; all seem to agree on its usefulness in cancer of the accessory sinuses, but only in conjunction with radical surgery.

Under the title, "A, B, C of Radium," E. M. Deland (Boston) gives a general survey of radium and its uses. He notes that it takes two hundred tons of carnotite to make one gram of radium. At the Huntington Hospital, the use of emanations instead of the actual radium was first conceived and carried out and is still preferred. He finds that cancer of the esophagus does poorly under radium. There is, first, a swelling which blocks the passage of food, and later, a sloughing which may be dangerous. Cancer of the larynx has responded well at first, but the effects are not permanent; and the cartilage is easily injured, setting up at times a severe and untractable perichondritis. In sarcoma cases, the small-celled type yield best to radium, while the spindle-celled sarcoma does not respond as well.

H. H. Forbes (New York) reports a series of thirty-six non-operative neoplasms treated by radium. He quotes Dr. Willis, who has charge of the radium at the Post-Graduate Hospital, as saying that, as far as dosage is concerned, the application of radium and the utilization of the beta or gamma rays is still in the experimental stage. Nor have they concluded whether the radium or its emanations give better results. The introduction of the radium needle into infected tissues has caused abscesses which an application of radium to the surface avoids.

W. Freudenthal (New York) reports a case of lympho-sarcoma of the tonsil in a man of fifty, which was removed with a snare and then treated with radium. There was no recurrence in thirty-four months. He also had two cases of epithelioma of the larynx which he removed

and treated intralaryngeally with radium. One died and one was cured.

D. C. Greene (Boston) reports a series up to June, 1920, where the larynx was involved in 37 and the upper jaw in 15. Radium was used in all. He concludes that radium should be used as an adjunct to the operation; it has supplementary, not primary value, though radium alone helps in extensive inoperable cases. In early cancer of the larynx, thyrotomy promises better; radium destroys cartilage.

W. L. Culbert (New York) says, "In malignant growths of the mucous membranes, especially of the nose and larynx, the efficacy of radium has yet to be proved. In my experience, better results have been obtained with the surface application of the radium element or emanation than by imbedding needle containers, the insertion of which frequently produces an over-amount of necrosis likely to lead to the formation of abscess."

H. A. Barnes (Boston) discusses the combined operative and radium treatment of malignant disease in the accessory nasal sinuses. He thinks the difficulty of early diagnosis and the irrational bloc removal of the superior maxilla which has heretofore been in vogue, or the more recent direct removal of the involved area which necessarily contaminates healthy tissue, are contributing causes in so many failures experienced. With the detailed operative procedures now possible by reason of greater familiarity with the anatomy, and with the immediate use of radium after the operation, results are now forthcoming that have not been possible. He recommends the Moure incision and the operative entrance directly through the face. A post-nasal plug and the use of the Rocci tube for ether keeps the blood out of the pharynx. All involved tissue is removed and an effort made to get into healthy tissue. The wound is kept permanently open by the removal of the V-shaped flap of Moure incision. The proper dosage of radium emanations is now inserted into the cavity with the packing, and remains in place about two weeks, being re-inserted with each dressing. Three or four subsequent radium treatments are given at weekly intervals, and repeated later at any suggestion of recurrence. One is cautioned against a radium dosage which will produce any marked reaction. A destructive action is not desired. It may cause a painful slough, and even dangerous bony necrosis. Eight cases are given, seven of which were of the advanced type, involving the ethmoids and sphenoid, long standing and apparently hopeless cases. Fifty per cent. were living and showed no recurrence.

G. B. New (Mayo Clinic) reports malignant tumors of the antrum treated by cautery from a soldering-iron, followed by radium. Of these, ten are well, with no recurrences, over a period of from eight to twenty-eight months; three had

been lost track of, two had recurrences, and three were dead.

R. C. Lynch (New Orleans) reports nine cases of laryngeal cancer operated upon perorally by suspension, with six cures, two recurrences which were cured by laryngectomy, and one death. Radium was not used in these.

The use of x-ray in the post-operative treatment of these malignant forms has been helpful, particularly in preventing lymph metastasis, but it has been impossible to apply as strong a dose direct to the part as can be done with radium, because of the danger of burning the skin. Recent work has not yet concluded points to the successful screening of the burning rays in x-ray. If this can be done, the therapeutic rays can be given in very much heavier doses and with correspondingly greater success.

The x-ray is also used in control of infectious processes. H. A. Osgood (Boston) discusses its use for the control of hypertrophied diseased tonsils. Three or four treatments are given at intervals of two to three weeks. Atrophy results in from six to nine weeks, with a decrease in size to one-quarter the original. The action is only on the lymphoid tissue, not on the tonsillar infection. The shrinking of lymphoid tissues encourages the opening of the crypts and their drainage. This procedure offers no danger in expert hands. The dose is carefully controlled, and neighboring parts are screened. One must wait for results, and not proceed with more x-ray treatment if a shrinking of tonsil tissue does not immediately follow. The compensatory hypertrophy of Waldeyer's ring, frequently seen after an adenotonsillectomy, does not appear.*

The high-frequency current is advocated by Stewart for the removal of tonsils. F. H. Williams (Boston) uses radium for reducing tonsil hypertrophy and disease. Fifty milligrams is filtered through aluminum and held in a retainer near or against the tissue. Diathermy is also recommended for the removal of tumor masses. The tissue is painted with iodine and the high-frequency current is applied, up to two amperes. A large current through a small electrode generates heat. The tumor is coagulated *in situ*. If destruction has not gone deep enough, remove the slough and repeat.

Book Reviews.

Diseases of the Chest and the Principles of Physical Diagnosis. By GEORGE W. NORRIS, M.D., Assistant Professor of Medicine in the

*From evidence at hand up to the present time, it seems very improbable that the x-ray will supplant surgery in the treatment of diseased tonsils.—Ed.

University of Pennsylvania, and HENRY R. M. LANDIS, M.D., Assistant Professor of Medicine in the University of Pennsylvania; with a chapter on Electrocardiograph in Heart Disease, by EDWARD KRUMBHAB, Ph.D., M.D., Assistant Professor in Research Medicine in the University of Pennsylvania; Second edition; thoroughly revised. Octavo volume of 844 pages, with 433 illustrations. Philadelphia and London: W. B. Saunders Company. 1920.

The fact that this is the second edition, with the first edition exhausted in less than two years, demonstrates that this book has filled a need and has been accepted by the profession. Even a cursory examination shows that this acceptance was justified and that the second edition should be even more popular.

The study of the literature of the world-wide epidemic of influenza in 1918-19 is not yet completed, but the authors have summarized well the results up to the time their manuscripts were sent to the press. A future edition will doubtless change some of their conclusions.

Mycotic infections of the lungs, about which there is an increasing literature, have been summarized by Dr. Landis, who, however, does not accord them the importance that some of the writers on these subjects have assigned them. Nevertheless, they must be kept in mind by the general practitioner who is called on to diagnose incipient pulmonary troubles.

In cardiac diseases, the causal classification advocated by Cabot is not found by the authors adequate to cover all the manifestations of these disorders. The authors, therefore, keep the reader's attention focused on the anatomic changes.

As the title would indicate, the authors do not discuss more than inferentially the treatment of the diseases studied.

The illustrations are excellent, both because they elucidate the text and because they are of themselves instructive. The physician will find them useful for frequent reference, especially those showing hardened sections of the lungs and the topography of the chest.

Sexual Impotence. By VICTOR G. VECKI, M.D., San Francisco, Cal. Sixth edition. 12mo of 424 pages. Philadelphia and London: W. B. Saunders Co.

This may be said to be strictly a medical book of use to the physician and to the surgeon. The subject is one which has been grossly neglected by the profession and exploited by the charlatan. This is all the more reason why legitimate medicine, and particularly the general practi-

tioner, who comes in close contact with his patients, should give it serious consideration. About one-fourth of the text is devoted to prophylaxis and treatment, the technique of which is well within the scope of all.

Orthopedic and Reconstruction Surgery. By FRED ALBEE, A.B., M.D., Sc.D., F.A.C.S., Lieutenant-Colonel M.C., U.S.A., 804 illustrations. Philadelphia and London: W. B. Saunders Company.

This splendid work of more than 1100 pages so fully includes the whole subject of Orthopedics in original discussion as to leave no need for other literature on such matter. Besides elaborate presentation of pathology and diagnosis, the treatment is given from every angle and all aids fully presented. Much discussion is given to the lessons taught in the late war, and the 800 illustrations fully illuminate the subject. Though the book is the product of one of the highest authorities on the surgery of Orthopedics, it contains a long list of references to other papers and reports on the subject. This book is of inestimable value in its clearness and completeness.

A Form of Record for Hospital Social Work (including suggestions on organization and typical record forms). By GERTRUDE L. FARMER, Director, Department of Social Work of the Boston City Hospital, Boston, Mass.

Miss Farmer, in this book, has pointed a way in which lack of uniformity of records in medical social case work can be overcome, not only among different departments of different hospitals, but even among the departments of the same hospital.

As a whole, the book presents in a concise form the material which is essential if one wishes to know how and why records are made and how they may be kept. For those who know about hospital social work and for those who should realize its importance, social workers, doctors and hospital executives, this book will show clearly the various steps taken in working out a medical social history and the careful recording of the same. It gives valuable suggestions as to how uniform records can be kept, whether dealing with patients needing "short service" or intensive social case work.

As Mrs. Ada E. Sheffield says in the introduction, "An important part of the plan Miss Farmer advocates is the regular and skilled supervision she recommends, which really amounts to a continuous training in the essentials of case work itself, thus the record is treated as the workers' thinking objectified."

Clinical Electrocardiography. By FREDERICK A. WILLIUS, of the Mayo Clinic. W. B. Saunders Co. 1922. pp. 188.

In this small volume, Dr. Willius has attempted to cover the subject of electrocardiography in its theoretical and practical aspects. An account is given in the early pages of the more important physiological considerations concerning the heart, which enables the reader to more clearly understand what follows. The simple details of mechanically obtaining the electrocardiograms are also described, and later, the interpretation of the curves is discussed.

The author was quite presumptuous in compressing into one small volume a survey of both the theoretical and practical sides of such a complicated and as yet only meagerly understood subject as clinical electrocardiography. There are numerous errors, both clinical and theoretical in nature. For example, in Figure 54, the a-v rhythm is not 3 to 1 as the author states, but rather an irregular degree of block; also Figures 76 and 77 are misleading, for the former is described as being a 2 to 1 heart block, while from the very tracing it is much more likely a 3 to 1 block; and both are instances of auricular flutter in which condition there is practically always some heart block. It would have been much clearer to show a 2 to 1 heart block in which the auricles were contracting normally. These errors indicate a looseness in the discussion of the subject which is harmful.

The author also states that paroxysmal tachycardia "does not attain a rate of 200 per minute." I have personally seen several instances in which the rates were 220, 240 and even 250 (such cases are recorded in the literature). He also attaches too much importance to the actual auricular rate in distinguishing auricular flutter from tachycardia, and fails to emphasize the importance of the characteristic form of the flutter waves, which is a sharp up and blunter down stroke.

It is of very questionable value to give possible clinical interpretations and pathological causes (as the author does in the chapters on the "T" wave and Q-R-S complex) of changes in the electrocardiogram that are as yet poorly understood. The fact that 24 per cent. of 197 cardiac patients who showed slurring of the Q-R-S group were dead in 4½ years, really tells us very little, for it is highly probable that 24 per cent. of unselected cases entering the wards of any large hospital are dead in 4½ years, no matter what the electrocardiograms show.

I can hardly recommend this volume, the publication of which seems to be premature and likely to cause confusion; especially as there are available in the English and American med-

ical literature treatises that for the present cover this field satisfactorily.

Protein Therapy and Nonspecific Resistance.

By WILLIAM F. PETERSEN, M.D., Chicago.

New York: The Macmillan Company. 1922.

In the present day, the use of vaccines, serums, boiled milk, and such biuret reacting substances as the proteoses, is being more and more employed in the treatment of chronic diseases, such as arthritis and to a somewhat less extent in the treatment of acute infections, such as pneumonia and typhoid fever.

In spite of an enormous literature on the subject, the indications for this form of treatment, the mechanism of its effect, as well as the mechanism of the reactions which often follow, are today little understood—so that the treatment is always attended with more or less risk and uncertainty. On the other hand, it is becoming generally recognized that nonspecific protein therapy does, in certain cases, do good, either by quite suddenly aborting the disease or by shortening its course and lessening its severity.

It is particularly fitting that such a qualified student and impartial scientific observer as Dr. Petersen should compile such a careful review of the literature and write such a comprehensive discussion of the subject at this time.

The text of the book occupies 256 pages, and is followed by a bibliography of 50 pages. The review of the literature is excellent and complete. The theories and the probable mechanism of the reaction following the injection (intravenous) of nonspecific protein substances are discussed both from the point of view of the antibodies concerned and from the point of view of ferments and enzymes. The application of these theories to various infections is brought out. It is interesting to see considerable emphasis laid on the focal reaction and its importance.

The last 114 pages of the text deal with the application of nonspecific treatment to many diseases. Here again, the literature is carefully reviewed and discussions of the special mechanisms are added, which lead to an exposition of the various indications and especially to the contraindications to this form of treatment.

The last paragraph of the introduction, written by Dr. John L. Miller, may well be quoted:

"To all those interested in the treatment of infections—and this includes both physicians and immunologists—this book will be most welcome, presenting as it does in a comprehensive manner, a complete analytical review of the subject, which will be of assistance in furnishing a basis for further carefully controlled studies."

Infant Feeding. By CLIFFORD G. GRULEE, Associate Professor and Acting Head, Department of Pediatrics, Rush Medical College. Fourth edition; revised. W. B. Saunders Co.

The fourth edition of this well-known book has been enlarged by adding an extra chapter, "The Psychology of Infant Feeding," and has been generally brought up to date. This book was the first American book on infant feeding to detail the teachings of Finkelstein, and the fact that it has gone through four editions and several extra printings since 1912 attests its popularity.

In the main, it is well written; Dr. Grulee is conservative in his statements, and has a wide knowledge of the literature. The first 99 pages are devoted to a discussion of the scientific bases of infant feeding, such as the anatomy and physiology of the digestive tract, the metabolism of the food, etc. In the Reviewer's opinion, this is not well done; a great deal of ground is covered, it is true, but much unnecessary and uninteresting information is included, and these pages seem too much like a jumble of isolated facts, some relevant, some irrelevant, set down without any attempt, for the most part, to show their practical value or to offer an interpretation of them in terms of every-day practice. To the average reader, the first 100 pages will be a bore, and it will be difficult for him to see what blood creatinin, blood amino-acid or the cultural characteristics of the colon bacillus have to do with his practical, every-day problems of infant feeding. In short, the section on metabolism covers a good deal of ground; it is thorough but, in the opinion of the Reviewer, has not been brought into close enough touch with practice to make it readable or valuable. Of course, such a union is always difficult.

The chapters on "Breast Feeding" are excellent, especially that on "Nutritional Disturbances in the Breast-Fed," which will be a real help to anyone. In it the author has drawn mostly from his own wide experience rather than from the literature. His discussion of colic, on pages 151 and 152, is one of the best things on the subject in English. The chapter on the "Foods Used in Artificial Feeding" is rather superficial and uninteresting; anyone who has used it would not agree with the author that dried milk has little place in infant feeding.

The chapter on "The Artificial Feeding of the Normal Infant" is done well, but the Reviewer cannot but feel that if anyone has solely at his command whole milk dilutions, such as Dr. Grulee recommends, he will often be at sea.

It is a pleasure to read, on page 208, Dr. Grulee's condemnation of feeding vegetables to

young babies, and we heartily wish that he would continue spreading this gospel throughout the Middle West. He begins vegetables at 15 months, which is conservative, safe and sensible. He has devoted only three-fourths of a page to the feeding of children during the second year. The subject deserves more space. The chapters on "Digestive and Nutritional Disturbances in the Artificially Fed" are well written and give an excellent idea of modern German methods. That on "Fat Disturbance" is particularly good. Dr. Grulee has apparently grouped all the so-called "Summer Diarrheas" under the heading of "Intoxication." The Reviewer cannot agree with him in this, and wonders that he does not more cleverly differentiate infectious and fermentative diarrheas.

The chapters on "Rickets and Scurvy" are rather superfluous; it would have been better either to leave these subjects out entirely or to treat them more fully. The closing chapter on the "Psychology of Infant Feeding" is excellent, and it was a happy thought to include it.

This book is constructed in a scholarly way; it is scientific and complete, for the most part; one might wish, however, that the author had effected a somewhat closer union between science and practice and had been able to make the first part of the book a little more *alive*. This first part resembles too much a catalogue. In the main, it is a good book, and will be a real help to many people, especially those who believe in German methods, while others will not care for it. It is not possible to write a book on infant feeding which will please everybody; there is too much difference of opinion in different sections of the country.

A Laboratory Manual for Comparative Vertebrate Anatomy. By LIBBIE H. HYMAN. Chicago: University of Chicago Press. 1922.

This monograph from the Department of Zoology of the University of Chicago, aims to provide a manual of vertebrate anatomy suitable for the comparative plan of laboratory teaching there introduced. A brief account of the development and evolution of each system is given in connection with the directions for its dissection. The series of animals selected consists of the elasmobranch, skate or dogfish, necturus, turtle, pigeon, cat, or rabbit. The text is well illustrated with a series of 69 figures. A classicist would criticize adversely the use of *plexi* as a plural. As a whole, the book commends itself highly, and should be found valuable in the college teaching of vertebrate zoology.

An Introduction to Dermatology. By NORMAN WALKER, LL.D., M.D., F.R.C.P.; Physician for Diseases of the Skin, the Royal Infirmary, Edinburgh. Seventh Edition; with 84 plates and 80 illustrations in the text. New York: William Wood & Company. 1922.

In the preface to the first edition of this book, in 1899, the author stated that his aim has been to describe fully all the more common diseases such as the ordinary practitioner is likely to meet with, and to omit the rare conditions which chiefly concern the specialist. In this, the seventh edition, the temptation to enlarge the scope of the Introduction has been resisted, and the characteristics to which its success has apparently been due have been preserved. Newer methods have not been dealt with so fully as some might wish, not from any hostility to them, but because they should still be considered the property of the experts before attaining a position which justifies passing them over to the general student.

An Index of Treatment. By Various Writers. Edited by ROBERT HUTCHISON, M.D., F.R.C.P., Physician to the London Hospital, and JAMES SHERREN, C.B.E., F.R.C.S., Surgeon to the London Hospital. Revised by WARREN COLEMAN, M.D., Assistant Professor of Medicine, University and Bellevue Hospital Medical College.

This is, as the title page defines, only an index of treatment and a compilation of the opinions of one hundred British surgeons and physicians. For the general practitioner, this book would furnish suggestive general information on a great variety of conditions often encountered.

The first part of the book is devoted to the general principles of therapeutics. The following pages deal with medical and surgical problems in a concise but very limited way. A busy man who wanted to refresh his memory could find reference to many disorders and surgical conditions, but the well-qualified physician would be disappointed in the failure to find much help in dealing with the more important features of pathology and diagnosis. The articles assume that the reader is able to diagnose the diseases referred to and it is probable that good diagnosticians have a working knowledge of treatment.

Although the book is well gotten up, and there is nothing to criticise in its mechanical details, it is doubtful whether a synopsis of medicine and surgery adds much to the literature of the present time, although some practitioners may need, in one volume, more than can be found in a modern medical dictionary.

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OPPOSITION TO THE SCHICK TEST IN WORCESTER.

MRS. JESSICA HENDERSON, spoken of as an officer of The Medical Liberty League, in a Worcester paper, is organizing a movement designed to enlist the mothers of pupils in the Worcester schools in opposition to the use of the Schick test. A protest was filed with the school committee. The Worcester Board of Health had previously voted to ask for the co-operation of the school officials and had arranged to apply the test only to those children whose parents or guardians had applied for it. Mrs. Henderson is quoted as having said that there was no occasion for the use of this test in Worcester because there were only fourteen deaths from diphtheria and croup in 1920, and that the use of the test was not devoid of danger, and claimed that seventy cases are on record where children suffered injury or death from toxin treatment.

It is to be hoped that everybody—Mrs. Henderson included—will read the Monthly Bulletin of the Department of Health of New York City for February, 1922. In this publication appears the most lucid and convincing array of facts and opinions relating to the Schick test, written by William H. Park, M.D., the Director of the Bureau of Laboratories.

The points brought out by Dr. Park are that

however wonderful are the results of antitoxin treatment of diphtheria, this disease can never be conquered by this method alone. "The combination of the ever-present carrier of bacilli and the slowness of people to recognize diphtheria when it develops, still permits the occurrence of fifty per cent. as much diphtheria as we would otherwise have, and perhaps one-sixth of the number of deaths." During the past five years diphtheria mortality and morbidity have not decreased to any appreciable extent. The hope for the future lies in toxin injections or bacterial vaccines. Von Behring made a great contribution to available knowledge in his demonstration of the safety of the injections of toxin-antitoxin about 1913, but not having the Schick test, the immunity developed so slowly that many exposed children were not brought to the stage of safety early enough to avoid the development of diphtheria.

The harmlessness of the toxin-antitoxin injections was demonstrated in New York late in 1913, and it was shown that after these injections about 80 per cent. of those possessing insufficient antitoxin developed immunity. Observations have been made of some ten thousand children over a period of from three to six years. *There have been no serious immediate or late after-effects.* No diphtheria has developed among children who have received these injections. After these injections of toxin-antitoxin about 80 per cent. of the children retain evidence of immunity for at least six years. With the few who partially fail to respond, after a second treatment it is found that immunity is established. Even if it shall be found that the immunity conferred is not permanent it is only necessary to repeat the treatment whenever it is demonstrated that immunity has disappeared. It has been found that the great majority of children who have natural immunity, retain this immunity for a period of five years at least. It is very interesting to note that those children that do not react to the Schick test do not seem to be susceptible to diphtheria.

In the circular to parents distributed by the Department of Health of the City of New York, one part is especially impressive, as follows:

"A WONDERFUL DISCOVERY.

"It should, therefore, be a source of joy to parents to learn that as a result of a recent discovery by Dr. Schick, it is now possible to say with certainty that diphtheria can be prevented and that not many years hence there will probably be as little diphtheria as there is smallpox now.

"This discovery consists of two parts:

"1. A method of finding out whether a child (or grown-up) is liable to get diphtheria or not.

"2. A method of preventing those who are susceptible to diphtheria from ever catching the disease."

Mrs. Henderson's activity illustrates a sad tendency to discredit scientific medicine. If her purpose was to array herself against society with a vicious ambition to destroy good government, she could be dealt with effectively, but unfortunately she appears to be a morally honest, although self-deceived, person who is trying to protect society against evils which she thinks are inherent in medical practice. The danger is not to herself but to the large number of persons who have suspicious temperaments and who are easily influenced. She is unconsciously aiding and abetting those agencies which burden society and cause death. Every age has produced fanatics, and Mrs. Henderson is an example of these unbalanced people. If she had a logical and honest intellect she would devote the resources at her command to employing trained workers who could investigate this and kindred subjects and render opinions of scientific value, rather than assume that the consensus of opinion as put forward by many scientists is fundamentally wrong.

An objector who is willing to argue from facts is entitled to a hearing, but one who becomes almost infuriated in argument and ignores logic, may be compared to that animal which reacts violently to a certain color scheme.



THE INSTITUTE FOR NURSES.

AN attendance of some two hundred and fifty of the health workers of Greater Boston at the Institute for Nurses, on March 28, testifies to the success of this venture of the Boston Tuberculosis Association, which follows a like success last fall at the Institute for Physicians. Both of these occasions were efforts to present to special workers the latest information with reference to tuberculosis. The Institute for Nurses was held at the Medical Library through the courtesy of the Massachusetts Medical Society. The two occasions were quite different in that the first addressed itself to practitioners and sought to bring them into touch with the latest developments in methods of diagnosis and treatment. The Institute for Nurses sought to make these visitors to the home an instrument more powerful than they now are in the discovery of incipient cases of the malady. The speakers at both institutes were of the highest character. For the physicians, such authorities as Dr. Miller, Dr. Brown and a dozen specialists of Boston, and for the Institute for Nurses the speakers included the

Health Commissioner of New York State, the President of the Boston Tuberculosis Association, the Director of the Division of Tuberculosis in Massachusetts, with three women, leaders in their departments, presenting the results of practical experience for the benefit of other workers in the various fields. Institutes of this character cannot fail to be of highest value in the warfare on disease, and of especial importance here is the public health nurse, who has the advantage of entry into the home and acquaintance with the family. She has an opportunity to be a powerful agent in that great force, health education of the people, and it is fitting that efforts like this institute be made to put her into touch with the most recent knowledge.

Below are abstracts of the papers presented.

The presence of Dr. Hermann M. Biggs, Health Commissioner of the State of New York, made of the sessions of the Institute for Nurses of the Boston Tuberculosis Association, on March 28, an occasion of more than State-wide interest and profit. His presentation of the general subject of the place of the nurse in public health work was that of a man with extended view, who has been able to effect in his own State a development of the public health nurse that is at once remarkable and valuable.

In his initial phrases Dr. Biggs complimented Boston and Massachusetts because of their early and energetic work in tuberculosis, and claimed only to present conditions in another State. He dwelt on the history of anti-tuberculosis regulation in New York, noting how the early measures (1887-1888) were not supported by the physicians of the day. It was with some opposition that there were established the fundamental requirements of a broad educational campaign, reporting of cases of tuberculosis, examination of sputum, visitation of patients in their homes, and terminal disinfection or cleansing. These, however, have come to be established practices today. He spoke particularly concerning the lack of beds for tuberculous patients in early days, noting that the entire special equipment was one small hospital in Brooklyn of about one hundred beds. At the same time the regular medical wards of the hospitals were occupied to the extent of one-third or one-half by such cases. These cases were usually advanced or dying, for they seldom came in till very late.

Outlining the conditions of those times, the speaker noted that no precautions were taken as to disposal of the sputum, ventilation was bad, and it was quite common for nurses and hospital assistants to contract the disease.

Living conditions were unfortunate, with much overcrowding and little ventilation, and advanced cases remained in the tenements till the end. Under such conditions the mortality

rate from tuberculosis was 360 per hundred thousand of population. Here Dr. Biggs compared the decline in the rate of New York State with that of Massachusetts, showing how they were almost identical. The rate for the Borough of Manhattan for last year was about 100 per one hundred thousand, less than one-third of its earlier figure. (This improvement has been brought about by a large number of factors: improved housing, bettered sanitary conditions in the city, widespread public health education, greater intelligence of the people, improvement in living conditions and decrease in alcoholism. A very important factor has been the removal from their homes of a large percentage of the advanced cases of consumption. A good deal of detail was entered into in bringing the story of older days down to the present, one striking fact being that the foci of intense infection in New York today are only about one-fifth to one-seventh of what they were twenty-five years ago. Incidentally the decline in the infant mortality was noted, this figure having dropped from 250 per thousand births to 82 in the year 1921.

Dr. Biggs referred to the public health nurse as being one of the most important factors in the accomplishment of what has been done. It is well to take cases of communicable disease out of their environment, but in the final analysis the largest results are to be obtained from the carrying of the lesson, the public health lesson, the lesson in personal hygiene, to the family and the individual, "and," said Dr. Biggs, "it is the public health nurse who is the most important, the most effective agent in the work. We have felt this very strongly in New York State, and have been using every effort in these last five years to increase the number of workers in the field."

The speaker next referred to the training of nurses and noted that there is a problem in this, how to qualify nurses already in the field for educational work, and how to better prepare those in course of training.

Dr. Biggs referred to the fact that the State has beds enough now for the needs, but they are not properly distributed, and on January 1 there were 1500 empty beds in New York City. He sketched rapidly the situation of tuberculosis work in the State, referring especially to the consultation clinics, of which there were perhaps 200 to 300 last year. Every county tuberculosis hospital has at least one nurse who seeks out the cases of this disease, keeps in touch with them and strives to get them to hospitals or clinics. At these clinics more than 8,000 persons were examined last year, and about 30 per cent. found to be positive. The work at present centres largely about the county organizations.

In closing, Dr. Biggs referred to the motto proposed by him for the New York City Health

Department, "Public health is purchasable. Within natural limitations any community can determine its own death rate."

Dr. John B. Hawes, 2d, President of the Boston Tuberculosis Association, presented the first paper, which discussed general conditions in tuberculosis. The speaker emphasized the fact that tuberculosis is not hereditary, that it is passed from one to another chiefly through ignorance of certain fundamental laws. The economic burden is an important one, costing the country some \$300,000,000 a year, without counting the disability of individuals or discomfort and unhappiness. The speaker pointed out the difference between infection and actual diseased condition, and noted that tuberculosis infection is well-nigh universal in human beings leading the civilized life by the time they reach the age of fifteen or sixteen.

Dr. Hawes addressed himself particularly to the nursing profession, uttering a word of warning against diagnosis of disease, the province of the nurse being to lead the person to some medical authority. The important feature of the work of the nurse lies in the opportunities for observation, especially with children, and in the homes, and in industrial work there is opportunity to note possible contacts and get the individuals properly guarded or treated. There is no danger to be feared by the nurse of contracting tuberculosis.

Miss Mary E. Edgecomb, Supervisor of Tuberculosis Work with the Providence (R. I.) District Nursing Association, spoke historically of the beginnings of "follow-up" work. In 1900 an experiment at the Johns Hopkins Hospital proved the foundation stone of the present structure. The necessity of the follow-up has changed the character of the work, and from care of the advanced patient it has assumed more the phases of prevention and education. The care of the patient in the home is the cornerstone on which all successful tuberculosis work must be built.

The paper of Miss Mary Murray was of especial interest in Boston, since it was largely a story of the Lakeside Preventorium of the Providence Tuberculosis League, of which she has charge. The Lakeside camp was opened in 1907 and for a number of years it was a day camp, permanent buildings being gradually erected. Since 1913 it has been open throughout the year, and for five months the children—it is a preventorium for children—are all the time in the open air. The story was valuable for the facts that it presented with reference to the administration of such institutions. The results were particularly satisfactory. Of a group of 88 children, 15 were on entering from 20 to 30 per cent. under weight; 43 were 10 to 20 per cent. under weight and 17 were 10 per cent. or less under weight.

All of the first group and all of the last one made up their weight while at Lakeside, while of the 43 in the second group, 39 made up the deficiency before discharge.

Of especial value, since it was a recital of actual experience, was the paper of Miss Margaret G. Weir, Executive Secretary of Public Health Dispensary Commission of the city of Beverly. Many details of a carefully considered policy which should secure the coöperation of various agencies were sketched. The speaker emphasized a number of points: that the greatest problem lies in the discovery of the cases and placing the individuals under proper care; that because the disease embraces medical, social, economic and industrial problems, its control should be in the hands of trained men and women, and that the public health nurse has the opportunity to direct her work into preventive and constructive lines.

The tuberculosis programme in Massachusetts was briefly outlined by Dr. Sumner Remick, Director of Division of Tuberculosis, Department of Public Health, and Dr. Eugene R. Kelley, State Health Commissioner, spoke extemporaneously with reference to the empty bed problem. Such surveys as that at Framingham would indicate that there are many who ought to be in those beds, probably quite as many as there are empty beds. "It is a challenge to a group like this," said Dr. Kelley, in addressing the assembled nurses, "to feel the necessity of follow-up work and really know where the patients are."

Following the Institute was a social hour. The committee in charge of it included Miss Bernice W. Billings, Executive Secretary of the Association, and Miss Zepha M. Gardner, Superintendent of Nurses, Boston Sanatorium Outpatient Department.

TROPICAL MEDICINE.

HERETOFORE we have published no reviews from the journals on tropical medicine, but it is now proposed to add several of the leading journals in this field to the list of publications for review.

The American Journal of Tropical Medicine is the official organ of the American Society of Tropical Medicine. The current number of this journal, Volume II, No. 1, January, 1922, contains several articles of unusual interest.

Dr. John M. Swan, in his presidential address to the Society at its last meeting, describes the rapidly growing work in our Southern States for the prevention of malaria. He emphasizes the point made by Gray "that it is cheaper to control malaria than to suffer for it," and expresses his belief that we may look forward to the time when malaria will be controlled throughout the continental United

States. Further, he says that in Central America, the West Indies and in the tropical parts of South America, sanitary problems must be solved before commercial, agricultural, engineering and mining enterprises can succeed, and proposes that the United States should endeavor to help in this field, not in the sense of exploitation but of constructive coöperation. To this end Dr. Swan urges the establishment in the United States of an institute which should serve not only as a clearing house for problems of the tropics, but which should also instruct physicians and nurses to meet the needs of the tropics.

The first three papers in the current number of *The American Journal of Tropical Medicine* are by N. T. McLean, by Reynolds Hayden and by O. J. Mink. Public health problems in the Republic of Haiti, in the Dominican Republic, and in the Virgin Islands are dealt with by the authors respectively. All are officers of the United States Navy who have been engaged in the administration of the work described and who consequently are able to supply interesting first-hand information.

Callender contributes an article about the Army Medical Museum in Washington in which he says that the Museum hopes, in coöperation with other museums and pathological departments, to inaugurate an exchange system for mutual benefit. The Museum is glad to receive pathological specimens of all varieties. Opportunity is offered to physicians to study the collections and to consult the files. Microscopical and histological material and accommodation for the prosecution of extensive studies are available through application to the curator.

An article by Moise D. Levy describes a new method for the treatment of trichomonas infections, a condition which hitherto has proved refractory. Levy's method is simple, seems to have been efficacious in a few cases, and would seem to deserve further trial.

A. C. Stevenson, working at the Welleome Bureau of Scientific Research, examined the kidneys of 100 wild rats for *Leptospira icterohemorrhagiae*, the organism of infectious jaundice. He found a high percentage of the rats were infected, although the disease is practically unknown in the area.

One prominent English journal and the leading French journal of tropical medicine will be abstracted. The journals selected are the *Annals of Tropical Medicine and Parasitology* and the *Bulletin de la Société de Pathologie Exotique*.

Now is the time to swat the early fly. One fly killed in the early spring means more effective control than hundreds in summer.

NEWS ITEMS.

BOSTON BOARD OF HEALTH.—During the week ending April 8, 1922, the number of deaths reported was 253 against 227 last year, with a rate of 17.21. There were 42 deaths under one year of age against 29 last year.

The number of cases of principal reportable diseases were: Diphtheria, 58; scarlet fever, 28; measles, 215; whooping-cough, 5; typhoid fever, 2; tuberculosis, 39.

Included in the above were the following cases of non-residents: Scarlet fever, 1; tuberculosis, 6.

Total deaths from these diseases were: Diphtheria, 2; measles, 1; tuberculosis, 17.

Included in the above were the following cases of non-residents: Tuberculosis, 2.

Encephalitis lethargica, 8 cases, 3 deaths. Of these, 5 cases were non-residents and 2 deaths were non-resident.

DR. NEIL A. DAYTON, formerly of the Westboro State Hospital, has accepted the position of Senior Assistant Physician at the Wrentham State School, Wrentham, Mass., and assumed his new duties on April 4, 1922.

DR. ELLIOTT P. JOSLIN delivered an address before the New York Academy of Medicine, April 6, 1922. The title of his paper was "The Present Situation in the Treatment of Diabetes."

WORCESTER DISTRICT MEDICAL SOCIETY.—The regular meeting was held at 8.15 P.M., Wednesday, April 12th, at the Worcester State Hospital, Belmont Street. Program:

"State Medicine vs. Preventive Medicine," Dr. Eugene R. Kelley, Commissioner of Public Health, Boston; "Mental Health in Children," Dr. Walter E. Fernald, Waverley.

After the meeting lunch was served by members of the staff.

The Censors will meet in the Public Library at 4.15 P.M., Thursday, May 4th.

J. J. GOODWIN, *Pres.*
A. W. ATWOOD, *Secy.*

THE WORCESTER DISTRICT MEDICAL SOCIETY.—The regular clinical meeting of the Staff of the Worcester City Hospital was held March 31, 1922. The program was in charge of the Surgical House Officers and was as follows: "Puerperal Psychosis," Dr. W. E. Savage; "Gas Bacillus Infection," Dr. I. M. Webber; "Cathartics," Dr. A. W. Locke.

Dr. E. A. Leavitt of Worcester, who has been critically ill at the City Hospital, with uraemia, is very much improved.

DR. C. E. MONGAN delivered an address before the New Hampshire Medical Society Tuesday, April 18, on "Some Aspects of Social Medicine."

Miscellany.

A TUBERCULOSIS STUDY IN BOSTON HOSPITAL OUT-PATIENT DEPARTMENTS.

UNDER the above title Dr. John B. Hawes, 2nd, and Bernice W. Billings, R. N., have made a survey with the following objects in view:

1. What happened to patients diagnosed as having pulmonary tuberculosis and other forms of tuberculous disease?

(a) Were they promptly reported to the Board of Health?

(b) Was sanatorium or other proper treatment promptly and efficiently instituted?

2. What happened to patients in whom a provisional diagnosis of tuberculosis was made?

(a) Did they report back for further examination, and if not, why?

(b) If not, what was done about it?

3. How efficiently and thoroughly was the examination of "contact cases" carried out? By "contact cases" is meant particularly those children living in families where there is an adult case of pulmonary tuberculosis.

4. How close supervision and follow-up work was carried on in regard to those patients living in their homes?

5. What duplication of effort existed among these various institutions?

There were 963 patients in the groups studied. The report shows that pulmonary tuberculosis is fairly well reported, but that only 46.8 per cent. of the non-pulmonary had been reported. An analysis of the diagnoses of these cases show that they were as correct as would be reasonably expected in a group of this sort. One especially weak point is brought out which is found in failure to generally examine contact cases.

The following recommendations are made:

1. While pulmonary tuberculosis is evidently promptly reported, this is not the case with non-pulmonary tuberculosis. We would recommend that measures be taken in all the institutions covered by this study to remedy this defect.

2. We would recommend that all patients who are given a provisional diagnosis or who are diagnosed as "provisional" in the out-patient departments be automatically referred to the social service department in the out-patient.

department in which the patient is examined or referred to Boston Sanatorium, Out-Patient Department, for follow-up work, in order that reëxamination be made until the diagnosis is determined. With care the greater part of this entire group of "provisional diagnosis" could be eliminated.

3. We further urge the need of the establishment of contact clinics in the outlying sections of the city. It is very difficult, and likewise expensive, for mothers to bring large families of children into the center of the city, far from their homes, for examination. Undoubtedly many of these children would be examined if there were a nearby place to which they could be taken.

4. We believe that the Out-Patient Department of the Boston Sanatorium needs at least 16 additional nurses to follow up that important group of patients who are either arrested or improved cases of tuberculosis. Many of these patients would be enabled to become self-supporting and live for many years, providing they received more careful supervision in their homes.

5. The data secured from the Confidential Exchange showing that 372 of the 963 patients had been registered at this exchange, and that a large number of these patients were known to many medical and charitable associations would lead us to urge that all patients who are diagnosed as tuberculous in the out-patient departments, and who are given a provisional diagnosis in the out-patient departments, and who need follow-up work, should be automatically registered with this exchange by the social service departments. By this means duplication may be avoided.

The complete report can be obtained by applying to the Boston Tuberculosis Association, 3 Joy Street.

MEDICAL EDUCATION.

RADICAL changes in medical education must be made and made quickly, says Dr. S. S. Goldwater of Mt. Sinai Hospital, if the application of medical science is to continue to progress.

Dr. Goldwater makes a plea for changes in the medical curriculum which shall emphasize the study of the body from the standpoint of health rather than from that of disease. "The medical student," he says, "learns what a perfect human structure would be like, is taught that in health the human body behaves thus and so. If, at this point, one were free to ignore the traditions of the schools, one would be tempted next to direct the student to health conservation or preventive medicine. If the promotion of physical well-being is the aim of medicine, would it not seem to be logical after

familiarizing the medical student with the healthy body, to show him how, during infancy, childhood, adolescence, maturity and old age, the vigor of the human body can best be maintained? Time would be well spent in the study of the dangers that threaten infancy, youth and age, in all the walks of life."

MASSACHUSETTS TUBERCULOSIS LEAGUE.

THE Executive Committee of the Massachusetts Tuberculosis League has voted to recommend that the organization incorporate. In order that this shall be done, a vote at the Annual Meeting to turn the matter over into the hands of a Committee on Incorporation must be taken. The following proposed changes in the constitution are to be brought before the Board of Directors for discussion and action at a meeting to be held at the Hotel Victoria, Thursday afternoon, April 20, 1922, at 3 o'clock. Any action taken at this meeting will be in the nature of recommendations to the Committee on Incorporation. When the new corporation is formed the entire present constitution must be abandoned and a new set of by-laws adopted in its stead.

Most of these changes are made necessary by a new set of standards established by the National Tuberculosis Association for its affiliated state organizations and also in anticipation of incorporation of the State League. Other recommendations than those embodied in this communication may be made at this meeting. The Executive Secretary and Mr. Drinkwater, the Treasurer of the State League, who is acting as the attorney in incorporation proceedings, will be very glad to make any detailed explanation for the benefit of anyone who may wish further information than that contained in this communication.

PROPOSED CHANGES.

Article III—Membership. It is proposed to add a section to this article which will provide for "Corporate Members." The proposed article is as follows: "Corporate Members shall be limited to anti-tuberculosis and public health associations other than affiliated associations, sanatoria, business corporations, clubs, and welfare organizations, subject to the approval of the Executive Committee. The annual dues of Corporate Members shall be \$10."

It is also proposed to amend the last sentence of the article so that all members shall be entitled to one vote at annual meetings. This change is required by the new standards of the National Association.

Article IV—Directorate. It is proposed to change this article so that representative direc-

tors will be nominated by local associations and elected at each annual meeting instead of being elected by local associations as they are now. It is also proposed to provide for twenty-one directors at large, elected at the annual meeting, instead of making the Executive Committee and honorary officers ex-officio members of the Board of Directors. These changes are made necessary by the proposed incorporation.

HEALTH BULLETIN ISSUED BY BROOKLINE BOARD OF HEALTH.

THE March number is devoted largely to the health of the mind, the effect of tobacco and to obesity. The Board is to be congratulated on the sane and reasonable treatment given these subjects. Massachusetts is fortunate in having so many high-grade dissertations on public health matters which are being distributed by public agencies. In time, the people will know enough about the practical methods of conserving and promoting health that there will be evidence of greater progress. Knowledge will eventually lead to the elimination of the quack doctor.

RURAL TUBERCULOSIS CLINICS IN NEW HAMPSHIRE.

NINE of the ten counties in this State have been thoroughly organized with clinics and nursing service. The methods for creating a clinic are: first, appeals to selectmen and health officers. A place for the clinic secured, and the county nurse makes a survey of the mortality returns. Physicians are asked to give permission for visits to families in which deaths have occurred and the members of these families are asked to come to the clinic for examination. Whenever information is secured of persons suffering with cough or who are losing weight, all such are invited to attend the clinic. Druggists, school nurses, district nurses, and industrial nurses are asked to report suspicious cases. Addresses are made to operatives in factories and literature is distributed. During the past eighteen months, 378 clinics have been held and 7,289 persons examined. Two thousand, two hundred and seventy-eight cases of tuberculosis are now under medical care and nursing supervision.

SMALLPOX IN CONNECTICUT.

THE epidemic of smallpox now active in Connecticut is more important than any outbreak in that State since 1917. Thus far, there have

been 247 cases and the disease is not checked. In March, cases appeared in Bridgeport, Norwalk, Fairfield, Bethel, Milford, Danbury, Stratford, Monroe, Wallingford, and Westport. In every town the disease appeared first in unvaccinated persons. Only two fatalities have been reported thus far. Connecticut is more fortunate than Kansas, Colorado, Texas, Illinois and Oklahoma, for in these western states the disease was attended with a greater mortality. Oklahoma had 24 deaths among 38 cases in the county jail.

INSTRUCTIVE DISTRICT NURSING ASSOCIATION.

THE excess of sickness which forced the work almost to epidemic pitch during January and February, continued well into March, dropping toward the end of the month almost to normal.

A total of 3,548 new patients was taken on, and 31,482 visits made.

Nine hundred and ten new cases of grip, pneumonia, tonsillitis and colds, about twice the number cared for during March of last year, show a marked drop from the 1,680 new cases in February. One hundred and thirty-seven new cases of measles were admitted. This is very many more than usual, and only one less than were admitted during the entire months of January and February together. On the other hand, there were fewer cases of mumps, chicken-pox, and whooping-cough. Typhoid fever still lingers, two new cases being taken on, as were eight of erysipelas and rather more of all the other diseases.

The number of new cases of diseases of the heart is monthly increasing. This is strikingly shown by comparing the number taken on this month (49) with the number (27) admitted in March, 1921.

Two thousand, six hundred and thirty-seven prenatal visits—about the average number—were made, despite the fact that the accumulation of very sick patients made the nursing work abnormally heavy. Five hundred and sixteen new prenatal patients, many more than customary, were admitted. Also the average number of visits to well babies were made.

RÉSUMÉ OF COMMUNICABLE DISEASES FOR MASSACHUSETTS, MARCH, 1922.

General Prevalence.

There were 10,202 cases of communicable diseases reported for this month as against 12,721 cases for February. This decrease was due entirely to the lessened incidence of influenza, as there were slightly increased incidences in sev-

eral of the more important communicable diseases.

Chicken-pox.—There were reported 510 cases of this disease for the month.

Diphtheria fell off slightly from 789 cases for February to 718 cases for this month.

Dog-bite, requiring antirabic treatment, was reported in 12 instances.

Encephalitis Lethargica increased from five cases for last month to 28 for this month. The total for March, 1921, was 43 cases.

Epidemic Cerebrospinal Meningitis was reported in 14 instances.

German Measles had its usual incidence with 54 cases.

Gonorrhea and Syphilis were reported in about the usual numbers, 409 cases and 188 cases, respectively.

Influenza decreased from 5,221 cases for February to 1,647 cases for this month. These cases, as during last month, were reported chiefly from eastern and central parts of the State.

Measles increased from 2,062 cases for last month to 2,657 cases for this month. This number is made up chiefly from reports from eastern and northeastern parts of the State.

Mumps.—There were 513 cases of mumps reported for the month.

Pneumonia, Lobar, with 988 cases, was reported in about the same number as last month.

Scarlet Fever increased slightly to 998 cases. The total for February was 950 cases.

Tuberculosis, Pulmonary.—There were 651 cases of pulmonary tuberculosis reported for the month. This is an increase of nearly 200 cases over last month's report.

Tuberculosis, other forms, was reported in 95 instances.

Typhoid Fever.—There were 32 cases for the month, all of which were scattered cases.

Whooping-cough increased slightly to 523 cases. Last month's total was 391 cases.

RARE DISEASES.

Anterior Poliomyelitis was reported from Chatham, 1; New Bedford, 2; Norwood, 1. Total, 4.

Anthrax was reported from Boston, 1.

Dog-bite, requiring antirabic treatment, was reported from Arlington, 1; Billerica, 1; Boston, 1; Cambridge, 1; Holyoke, 1; Ipswich, 2; Lowell, 1; Medford, 2; Newton, 1; Winthrop, 1. Total, 12.

Encephalitis Lethargica was reported from Boston, 2; Brockton, 1; Brookline, 2; Fall River, 1; Haverhill, 2; Holliston, 1; Ipswich, 1; Lawrence, 3; Methuen, 1; New Bedford, 1;

Plymouth, 1; Salem, 1; Salisbury, 1; Waltham, 1; Webster, 1; West Boylston, 1; Worcester, 5. Total, 28.

Epidemic Cerebrospinal Meningitis was reported from Boston, 2; Cambridge, 1; Dudley, 1; Fall River, 3; Lowell, 1; Malden, 1; Melrose, 1; New Bedford, 1; Revere, 1; Southbridge, 1. Total, 13.

Malaria was reported from Boston, 6; Brockton, 1; Dartmouth, 1. Total, 8.

Pellagra was reported from Northampton, 1.

Septic Sore Throat was reported from Boston, 6; Brookline, 2; Cambridge, 1; Chicopee, 1; Easton, 1; Provincetown, 1; Shelburne, 1; Westford, 2. Total, 15.

Tetanus was reported from Pittsfield, 1.

Trachoma was reported from Boston, 4; Cambridge, 3; Chelsea, 1; Lawrence, 1; Lynn, 1. Total, 10.

EYESIGHT CONSERVATION.

IN 1921, Mr. Herbert Hoover, then president of the Federated American Engineering Societies, appointed a committee to study the subject of Waste in Industry. Eyesight Conservation Bulletin 1 has been published and is being distributed. Frank B. Gilbreth states that the following influences cause a loss in productivity of 20 cents per worker for every working day: defective lighting, alternate sitting and standing, dark colored walls, types of chairs used and similar influences. This means a loss of \$2,500,000,000 per annum for the entire working population. Although this estimate may be too large, a critical physical examination has revealed that more than 50 per cent. of the working people with defective vision require correction. Correction of visual defects should eliminate fatigue to a considerable degree. It is claimed that of the forty-two million men and women employed in this country, there are more than twenty-five million with defective vision which requires correction. It has also been found that correcting defective vision has resulted in increased efficiency, the value of which is far greater than the cost of such correction. In addition to the improved earning capacity of individuals, surveys of eye conditions will in the end save an appreciable number of people from blindness, thereby relieving the public of the burden of caring for blind persons who become unproductive in a great measure.

Investigations already made have aroused great public interest and brought about constructive action. Notices of this phase of physical conservation have been carried by over 900 daily papers and it has been estimated that at least 14,000,000 people have been reached.

Accidents to eyes are important because of accident insurance, in addition to the impairment of productivity. In the United States, approximately 15,000 persons are blind as a result of industrial accidents.

Of the permanently disabling accidents the eye was involved in 10.6 per cent. of all cases. Safety devices for the eyes have reduced accidents involving the eye from 75 per cent. in one plant to entire elimination in another. Both plants are engaged in operations which involve danger from flying metal chips. In addition to direct damage to the eye as a factor in industry, substandard vision, if uncorrected, may be important both in reducing efficiency and leading to other types of accidents.

The necessity for eyesight surveys is especially emphasized by those who have studied the workers in those industries where acuity of vision is essential. For example, in one manufacturing establishment it was found that 8.3 per cent. were wearing glasses which were satisfactory, but it was shown that 83.3 per cent. needed glasses, and only 8.4 per cent. were found to need no glasses. This indicates that the study of industrial workers is necessary, but also shows that many operatives had entered upon industry without having had proper attention in early life. It is very probable that examinations of children and the use of proper glasses early may tend to preserve eyes as well as create better workers later.

PENSION FOR WIDOW OF GENERAL GORGAS.

On March 24, 1922, the Senate passed the bill, which provides for a pension of \$150 a month for Marie Doughty Gorgas, widow of Major-General William C. Gorgas. This action is in special recognition of the eminent services of General Gorgas in the eradication of yellow fever from Cuba and Panama.

TYPHOID FEVER IN MASSACHUSETTS.

This State stands with Wisconsin in being on the honor roll of lowest typhoid rate in the registration area. Only nine states show a higher mortality in 1920 than in 1919.

Massachusetts had 153 deaths in 1918, 105 in 1919, and 95 in 1920. Since the amount of typhoid fever in a community is regarded as an index of sanitary conditions, the citizens of this State should feel pleased with the health administration.

A LEAF FROM ANCIENT HISTORY.

SINCE no date appears, the chronology is left to conjecture.

Dear Sir:

A circular was recently sent to the members of the Massachusetts Medical Society, asking the following question: Do you favor the admission of women to the Society on the same terms with men?

To this circular eleven hundred and thirty-two replies have been received, of which seven hundred and nine were in the affirmative, and four hundred in the negative, while twenty-three were indifferent.

BRISTOL, S.	44	41	24	16	1
The replies by Districts were as follows:					
	TOTAL NO. OF MEMBERS.	NO. OF ANS.	YES.	NO.	INDIF.
BARNSTABLE	22	20	9	11	
BERKSHIRE	47	38	24	13	1
BRISTOL, N.	30	26	18	8	
ESSEX, N.	65	59	40	19	
ESSEX, S.	81	72	45	26	1
FRANKLIN	29	22	15	7	
HAMPDEN	57	50	33	17	
HAMPSHIRE	42	40	24	14	2
MIDDLESEX, E.	26	23	20	3	
MIDDLESEX, N.	68	56	33	21	2
NORFOLK	126	105	62	39	4
MIDDLESEX, S.	156	131	94	36	1
PLYMOUTH	42	41	24	17	
SUFFOLK	357	269	151	112	6
WORCESTER	110	102	68	29	5
WORCESTER, N.	41	37	25	12	
Total	1343	1132	709	400	23

The membership of the Society, excluding non-residents and those temporarily out of the State, is thirteen hundred and forty-three.

It is therefore evident that a considerable majority of the Society, and seven to four of all who answered the circular, favor the admission of women.

Answers to the other questions on the circular show: first, that three hundred and thirty-six members have consulted with female-physicians, while six hundred and eighty-four have not (ten hundred and twenty replies); second, that nine hundred and thirty-one members do not object to consulting with a woman on account of her sex, while one hundred and forty-six do object (ten hundred and seventy-seven replies).

Respectfully,
S. CABOT, AND OTHERS.

MORTALITY FROM TYPHOID FEVER, 1920

THE Department of Commerce, through the Bureau of the Census, announces lower mortality rates from typhoid fever in recent years. The amount of typhoid fever in a community is

recognized as one of the best indexes of its healthfulness. So, also, the mortality rate from this cause is a very important sanitary index.

The steadily decreasing mortality rate from typhoid fever is therefore most gratifying, a decrease in the registration states of 1916 from 13.3 per 100,000 population in 1916 to 7 in 1920. In 1920, of the states in the registration area, Massachusetts and Wisconsin share the honor of having the lowest rate (2.5), while the highest (22.4) appears for South Carolina. Of the eleven states showing rates by color, the lowest rate for the white population was 3.6, and the lowest for the colored was 4.6, both for New York State, while the highest rate for the white population was 19.1 for Kentucky, and that for the colored was 30.2 for the same state.

Of the 33 states shown for 1919 and 1920 in the table below, only nine show higher rates in 1920 than in 1919, namely:

STATE	1920	1919
Colorado	9.2	8.5
Connecticut	4.1	4.0
Kansas	8.0	7.3
Maine	9.0	5.7
Michigan	7.9	7.6
New Hampshire.....	6.8	3.4
New Jersey.....	3.3	3.2
Vermont	10.5	3.1
Washington	5.6	4.2

AMERICAN MEDICAL LIBERTY LEAGUE. 59 EAST VAN BUREN STREET, CHICAGO, ILL.

ENDORSED by the above name, a circular is being distributed under the title, "Philippines Pus Punchings." The opening sentence reads: "'Catch 'em young, treat 'em rough, tell 'em nothing,' has been pus punchery's slogan in the Philippine Islands." The assertion is made lower in the circular, that "in 1918 the Philippine Health Service shot 3,285,376 slugs of pus into that number of Filipinos and reaped a harvest of 47,369 cases of smallpox, with 16,447 deaths!"

Much the same kind of language is used in the rest of the circular.

The circular is sold at the rate of \$6.00 per thousand. It also contains a challenge to The American Medical Association.

We trust that the A. M. A. will meet the challenge.

WHY BABIES DIE.

MORE than 100,000 of the 250,000 children less than one year old who die every year in the United States die from causes connected with their birth, says the U. S. Public Health Service. The need, it adds, for further study and investigation of these causes is urgent.

VITAMINES NOT A CURE-ALL.

THE present popular tendency to extol vitamins as a cure-all may be drawing to a close. The U. S. Public Health Service reports that efforts during the year to discover the unidentified food substance whose absence from the diet causes pellagra have excluded two of the three known vitamins. The search for the missing element is being steadily narrowed.

EACH DOLLAR BRINGS FIVE MORE.

THE U. S. Public Health Service reports that the expenditure of \$50,000 for rural hygiene work on the coöperative plan in the last fiscal year led to the appropriation of five times as much by states and counties and of a good deal more by private individuals and corporations.

WHO'S EFFICIENT NOW?

UNCLE SAM may owe arsphenamine (salvarsan) to Germany, but he has improved it a lot since he took over its manufacture some years ago. Today, says the U. S. Public Health Service, it and its fellows pass tests that are twice as rigid, which means that the drugs themselves are twice as safe as they ever were before.

JUST ONE ITEM.

IN a report made recently to the Central Committee of the American Red Cross by Chairman Payne, the sum spent by the organization during the calendar year 1921 in aid of disabled veterans of the World War, and their families, was given as approximately \$9,782,000.

Of this amount, \$2,782,000 was expended by National Headquarters,

This latter sum, used in one year in behalf of disabled ex-service men and their families by National Headquarters, was greater than all proceeds accruing to Headquarters from membership fees in the Fifth Roll Call, held during the same calendar year.—*The Red Cross Courier*, March 4, 1922.

CHIROPRACTIC.

A STRONG effort is being made in the New York Legislature to legalize the chiropractic methods.

A committee of the New York State Medical Society has met to organize a plan for combating this menace to the medical practice act. If passed, practically every outlaw practitioner could carry on his work under the chiropractic law.

CANCER.

THE increasing rôle of cancer in life insurance mortality may be seen from the payment of \$4,249,000 in 1921 as against \$3,645,000 in 1920. These claim payments on account of cancer constituted 9.4 per cent. of the total in 1921 as against 8.0 per cent. in 1920. The growing volume of claim payments for cancer is of less importance, however, than the fact of an increasing cancer death rate, which only emphasizes the inability of present-day medical science to effect any material reduction in cancer mortality. — *Bulletin Metropolitan Life Insurance Company.*

CARE OF THE BABY.

THE "Care of the Baby," a new and enlarged edition of a former publication of the same name, is contained in the recent number of the weekly Public Health Reports of the United States Public Health Service and is now being reprinted for general distribution. Its eminently practical character is shown in the section on bathing the baby.

CURIOUS ERROR IN DIAGNOSIS.

ONE case of smallpox of mild type was recently treated for syphilis in New York. The danger of extension of the disease by reason of an erroneous diagnosis is obvious. The patient was given mercurial treatment. Smallpox is bad enough without having to submit to the treatment for another disease.

POST-ANAESTHETIC VOMITING.

VAL MACDONALD, L.R.C.P., of Melbourne, Australia, reports that the use of adrenalin has controlled vomiting following the use of ether. If his claim is substantiated, a boon will be conferred on a large class of sufferers. He advises five to eight minims of the 1 to 1000 solution of Adrenalin Chloride in one to one and a half drachms of water by mouth. The hypodermic use of the drug is not advised. The stomach should be empty before administration.

HERNIA IN INDUSTRIAL ACCIDENT CASES.

THE Supreme Court of Iowa has decided that a hernia developing in the ordinary work of an operation in the stockyards is not sufficient reason for indemnity under the Workmen's Compensation Act, although the first indication

of the hernia came through a somewhat strenuous act.

THE MIDWIFE.

W. H. VOGT, M.D., of St. Louis, Mo., in an article published in the *Southern Medical Journal*, expresses himself about the midwife as follows: "One author recently showed by statistics that the mortality in Newark was smaller in cases attended by midwives than in those cared for by physicians. I have only to say that, so far as I know, the midwife has no mortality whatever. The reason is plain. When in trouble, she sends for the doctor and he signs the death certificate."

Boston has not had this experience. It is known that some cases have died under the care of midwives.

TYPHOID FEVER HELD COMPENSABLE UNDER WORKMEN'S COMPENSATION ACT.

THE Appellate Court of Indiana has decided that typhoid fever, contracted by an employee through drinking impure water furnished by the employer, is an "injury" by "accident arising out of and in the course of the employment" under the Workmen's Compensation Act, and as such is compensable.—*U. S. P. H. Reports.*

PUBLIC HEALTH CONFERENCE OF MASSACHUSETTS STATE FEDERATION OF WOMEN'S CLUBS.

THE tendency of the present time here in Massachusetts, especially, is to educate the people on matters pertaining to health. Recognizing the opportunities for the dissemination of information, the Women's Clubs are paying attention to public health measures. This is highly commendable, for in all probability women will be sent to the legislature in the near future, and they will exert influence in a larger measure, in proportion to information acquired. On March 29, 1922, The Massachusetts Federation of Women's Clubs held a Public Health Conference. Addresses were presented in the forenoon by Mrs. Sumner Coolidge, Dr. Donald B. Armstrong, Dr. Sumner Coolidge and Mr. Frederick Edwards. The problems of tuberculosis were especially discussed.

In the afternoon, Dr. Charles W. Eliot spoke on Animal Experimentation; Benjamin White, Ph.D., on Prevention of Disease through Vaccines and Antitoxins, and Col. Alfred F. Foote on the Prevention of Accidents.

PUBLIC HEALTH LECTURERS FOR THE YEAR 1922.

The Committee on Public Health of the Massachusetts Medical Society has been able during the past three years to arrange with well known specialists in various medical fields to give talks at meetings of the District Medical Societies on subjects of interest and importance to all practitioners. It is a pleasure to announce that a similar arrangement has been made this year and that the gentlemen named below are willing, without expense to the District Society, to give occasional talks of thirty to forty minutes on subjects relating to the promotion of public health, extending opportunity for questions and discussion. It is suggested that medical societies consider meeting at neighboring public institutions, since such meetings have been most successful in the past, particularly at the tuberculosis sanatoria and state hospitals for the insane.

José Penteado Bill, M.D., Doctor of Public Health. Specialty: Preventive Medicine.

Frank C. Dunbar, M.D., Bacteriologist, Instructor in Bacteriology and Pathology, Tufts College Medical School.

Walter E. Fernald, M.D., Superintendent, Massachusetts School for the Feeble-minded.

Timothy Leary, M.D., Professor of Pathology, Tufts College Medical School; Medical Examiner, Suffolk County.

Edwin H. Place, M.D., Physician-in-Chief, South Department, Boston City Hospital. Specialty: Contagious Diseases.

C. Morton Smith, M.D., Chief of Department of Syphilis, Massachusetts General Hospital.

George Gilbert Smith, M.D., Assistant in Department of Genito-Urinary Diseases, Massachusetts General Hospital. Specialty: Genito-Urinary Diseases.

Lesley H. Spooner, M.D., on Staff of Out-Patient Department, Massachusetts General Hospital, Specialty: Specific Diagnosis and Treatment of Pneumonia.

William C. Woodward, M.D., Health Commissioner, City of Boston.

George H. Wright, D.M.D., Lecturer on Dental Hygiene, Harvard Dental School. Specialty: Dental Surgery.

Thomas F. Kenney, M.D., Director of School Hygiene, City of Worcester. Specialty: Full time School Health Officer.

Secretaries of District Medical Societies writing to ask for these lecturers will kindly designate the topic, the place and the hour of meeting as well as the name of the desired speaker, thus eliminating unnecessary correspondence. Please address communications to the Secretary of the Committee, Annie Lee Hamilton, M.D., 164 Longwood Ave., Boston 17.

[Note: The Committee on Public Health feels that this notice may have escaped attention, for few applications have been received. Each lecturer is an authority and would present his subject in an interesting and instructive manner.]

EIGHTH ANNUAL CONFERENCE, MASSACHUSETTS TUBERCULOSIS LEAGUE.

These meetings cover three days, beginning April 20, 1922. The Board of Directors will meet in the Hotel Victoria at 3 p. m. On Friday the meeting will be in Huntington Hall at 10.30 a. m. After the President's address and the reports of the Secretary and Educational Secretary, there will be addresses by Dr. Sumner H. Remick, Director of the State Division of Tuberculosis, and Dr. Charles J. Hatfield, Director of the National Tuberculosis Association.

In the afternoon, beginning at 2 o'clock, there will be addresses on "Preventoria," by Dr. I. Ogden Woodruff, N. Y., and "Summer Camps," by Dr. Parker M. Cort, of Springfield. These papers will be discussed

by Dr. John B. Hawes, Dr. Walter Griffin, and by several members of the Legislature. At 4.30 there will be a question-box discussion.

On Saturday, beginning at 10 a. m., Huntington Hall, the School Health Program for Delicate Children will be discussed by Dr. Wm. T. Devine, Dr. Thomas Kenny, Miss Greta Mabry, Miss Alziba Sandwall, and Miss Lucy Queale. At 1 p. m. the Seal Sale Luncheon and Conference will be at the Hotel Victoria.

THE DEPARTMENT OF PUBLIC HEALTH
REPORTED WEEK ENDING APRIL 10, 1922.

<i>Disease</i>	<i>No. of Cases</i>	<i>Disease</i>	<i>No. of Cases</i>
Chicken-pox	91	Tellagra	1
Diphtheria	145	Pneumonia, lobar... 142	
Dog-bite	3	Scarlet Fever..... 174	
Encephalitis lethargica	9	Syphilis	38
Epidemic cerebro-spinal meningitis. 4		Suppurative conjunctivitis	13
German measles.... 18		Trachoma	2
Gonorrhea	77	Trichinosis	1
Influenza	38	Tuberculosis, pulmonary	146
Measles	678	Tuberculosis, other forms	19
Mumps	103	Typhoid	5
Ophthalmia neonatorum	21	Whooping-cough 57	

NOTICES.

MASSACHUSETTS GENERAL HOSPITAL.—Staff Clinical Meeting, lower Out-Patient Amphitheatre, Monday, 8.15 p. m., April 24, 1922. An account of the recent Physiological Expedition to Peru, illustrated with lantern slides. Doctors, nurses and medical students invited. Dr. Arlie V. Bock.

MASSACHUSETTS GENERAL HOSPITAL.—A Clinical Meeting of the Out-Patient Staff will be held in the Lower Out-Patient Amphitheatre at 12 Noon, April 26th. Programme: "Cervical Cord Tumor," Dr. George Clymer; "Post-Encephalitic Paralysis Agitans," Dr. E. W. Taylor; "Brachial Plexus Injury," Dr. Henry Viets; "Myasthenia Gravis," Dr. Hugo Mella; "Electromyographic Studies of Paralysis Agitans," Dr. Stanley Cobb; "Combined Cistern and Lumbar Puncture," Dr. J. B. Ayer. Doctors, nurses, and medical students invited.

RESIGNATION OF DR. ARTHUR V. GOSS.—The daily papers have reported that Dr. Arthur V. Goss has tendered his resignation as superintendent of the State Hospital at Taunton after a service of twenty-eight years.

DR. ROYAL P. WATKINS NOMINATED.—The Governor has nominated Dr. Royal P. Watkins of Worcester for the position of member of the Board of Registration in Medicine made vacant by the resignation of Dr. Fallon.

BOOKS RECEIVED FOR REVIEW.

The JOURNAL acknowledges the receipt of the following books for review:

Opiate Addiction—Its Handling and Treatment. By Edward Huntington Williams. Published by The Macmillan Co., New York. 194 pages. Price \$1.75

The Physiology of Gout, Rheumatism and Arthritis. By Percy Wilde. Published by Wm. Wood & Co., New York. 229 pages. Price \$3.50.

Internal Secretion and the Ductless Glands. By Swale Vincent. Published by Longmans, Green & Co., N. Y., and Edward Arnold & Co., London. 422 pages. Price \$8.50.

The Boston Medical and Surgical Journal

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Original Articles.

A CASE OF GENERAL PROGRESSIVE MUSCULAR ATROPHY, WITH RECOVERY.

BY JOEL E. GOLDTHWAIT, M.D., BOSTON.

THE following case is reported partly because of its unusual result in the light of the general teaching, but chiefly because of the stimulus which such a result should be to all who have to do with the care of the chronic conditions, no matter how hopeless they may commonly be considered. In the study of the case a hopeful attitude of mind was held, the patient fully understanding the hopelessness of his condition under ordinary teaching, but appreciated the honest efforts that were being made to unravel the mysteries of his condition, and gave himself, with much enthusiasm, to co-operation in all of the studies and treatment, with a result that was better than any had dared to expect.

In the report of the case, there is much that is lacking in scientific detail of cause and effect, but no apology is considered necessary, since most of the advances in the treatment of disease have started as empirical measures, the scientific explanation of the results coming later. In this case, the important thing is that a man who was markedly crippled and was be-

coming steadily more helpless, is today fully well and at the head of a large business. The "why" may be honestly discussed in any scientific body, but since the relief has followed certain specific routine of treatment which is similar to that used successfully in other conditions of disturbed physiology, it seems not unreasonable to urge the use of such measures until the so-called "exact methods" of science can guide us more wisely.

The case has already been reported with its biochemical history, by Dr. F. H. McCrudden,* and is reported more fully at this time in order to put on record the complete clinical history with the result based upon several years of trial under the ordinary conditions of life since the treatment was ended.

The patient, a man of 33 years of age, first consulted me in September, 1915. He was a business man, a resident of one of the Southern cities. He was married and the father of three healthy children, with nothing peculiar in his family or previous history that would be of significance in his present condition.

The history of the present condition is that about eight months previously, the patient began to notice that his legs were not of the usual strength, that he tired easily and felt insecure on his feet. Two months later, in trying to run a few steps, his knees gave out so that he

*Archives of Internal Medicine, 1916, Vol. 17, p. 455. Jour. A.M.A., 1918, Vol. 70, p. 1216

fell. At that time he was able to get up without assistance, but about a month later, in making a slight but sudden move, he fell again, and at this time was unable to get up without help. At this time, almost as soon as he was gotten upon his feet, his legs gave way again, so that once more he fell. Since that time, the weakness in the legs gradually increased, so that walking or standing was very difficult, and was possible only as the hands were pressed against the anterior part of the thighs to hold the knees from flexing; rising from the chair was impossible except as the arms were used; going over the stairs was impossible; and if the patient fell, it was entirely impossible for him to get up without assistance.

For the two or three months previous to this first examination, the weakness of the hands and arms began to be noticed, a condition which has gradually increased so that he is unable to fasten the small buttons of his clothes.

Upon further questioning, the patient stated that for four or five years he had seemed to be weak in the knees and ankles, there being a good deal of snapping in use, with stiffness in the morning, the weakness always being worse after moderate use.

The examination made at that time showed a patient of mixed anatomic structure, having some of the characteristics of the so-called normal and some of the slender type. The body was used in very poor poise, with the chest low, the abdominal wall thin and relaxed, so that the viscera were imperfectly supported, and with an exaggeration of the normal lumbar curve of the spine.

He was able to walk with difficulty with the thighs supported, was unable to rise from the chair except with the use of the hands and arms. The muscles of the legs were very much atrophied. There was no apparent paralysis, all of the muscles responding to voluntary effort, but with much less than the normal strength. The reflexes were all diminished. There were no permanent contractures. The voluntary raising of the leg with the knee straight was impossible.

The muscles of the arms and shoulders showed a similar condition, only less advanced. The trunk and abdominal muscles were weak but not paralyzed.

There was no evidence of joint disease, and while the pelvic joints were relaxed, as one would expect with such a weakened musculature, this was not an important factor in the disability.

A diagnosis of progressive muscular atrophy was made, the prognosis of the textbooks given, and the patient urged to enter the hospital for study, hoping that something could be found to modify this result.

The patient entered the Robert B. Brigham

Hospital, and was most thoroughly studied by Dr. Louis M. Spear, for the general medical examinations; by Dr. George Clymer, for the neurological study; by Dr. Francis S. McCruden, for the biochemical study, and the mechanics of the physiology was studied by Dr. Lloyd T. Brown and the writer.

There was no question regarding the diagnosis. There was nothing revealed in the general examination that indicated disease of the organs. The blood examination was not peculiar except that there was an almost total absence of the sugar and creatinin, which was interesting because of the marked atrophy of the muscles where the sugar is naturally stored.

The study of the mechanics of the physiology showed the low chest with marked ptosis of the diaphragm, with the loosely attached abdominal viscera of the slender anatomic type, their position being much lower than normal owing to the sagging of the diaphragm and the weakened abdominal wall.

Recognizing that with the low diaphragm and consequently the slightly moving diaphragm, the circulation of the abdominal viscera must be interfered with, since the blood is pumped back from the abdomen to the heart almost entirely by the contractions of the diaphragm acting upon the upwardly opening valves in the veins, correction of this seemed the logical first move. Some of the reasons for this are: first, that in a position of lordosis in which the diaphragm must be low, albumin in the urine can be produced comparatively easily in a good many individuals and that this can be relieved by the correction of the lordosis, the so-called "orthostatic" or "lordotic" albuminuria. Second, that sugar in the urine can be influenced for or against, at times, by simple disturbances of the mechanics of the body as it concerns the abdomen. Third, that disturbances of the digestion can be very definitely influenced by peculiar postures, especially those which influence the position and action of the diaphragm. Recognizing these facts, and in the lack of more specific findings, it seemed reasonable to correct the faulty mechanics and do everything possible to stimulate the general physiology.

The patient was put to bed, all pillows were taken away, so that the body was kept fully straight, with the chest raised instead of the usual flexed position which results from the pillows as commonly placed under the head and shoulders. In this position the diaphragm must necessarily be raised to about the normal position, which is midway between full inspiration and full expiration, in which, unless actual paralysis of the diaphragm exists, the action will be adequate to insure the normal return flow of blood from the abdomen to the heart. To accentuate this action, several periods of a half-hour each were used with the patient in

the so-called "hyperextended position," with a moderate-sized pillow under the dorsal spine, with the arms raised and the hands clasped under the head. This position, when analyzed, is that taken in yawning, which is, of course, a reflex effort to relieve abdominal distress.

Stimulating baths were given to help the physiology through the stimulation of the superficial sympathetic nervous system. For similar reasons light massage was given, especially of the muscles of the back and loin.

After the examinations had been completed, showing the low blood sugar and creatinin, in the hope of more rapidly improving his general vitality, small doses of adrenalin and pituitary extract were used, but before this was started, in the period during which the examinations were being made, in which no treatment was given other than the physiotherapy and the special postures, very marked signs of improvement showed.

In two weeks' time, the color had improved markedly, the muscles were in distinctly better tone. In three weeks, the patient could raise the straight leg from the bed, and at this time he was fitted to a brace which held the body fully erect and prevented flexion at the waist line, with the necessary lowering of the diaphragm. With this brace on, he was allowed up for short periods, and special exercises started to stimulate the development of muscles of the chest and trunk. During the rest of the time, each day, he was kept in the horizontal position, and to prevent the common bending at the waist line (dorso-lumbar level) in the many movements made in bed, a plaster of Paris jacket was fitted and worn, except as it was removed for bathing or exercise, or when he was up with the brace.

The diet was carefully watched by Dr. Spear, and made as abundant as the patient could stand, this including increase in the usual amounts of sugar.

The patient made a very rapid recovery, with the improvement showing strikingly after the first two weeks. He remained in the hospital for seven weeks, using the brace when up and about and continuing the special postures with frequent rest periods, during the day.

Upon leaving the hospital, the patient made daily visits to the office gymnasium, the entire emphasis being put upon the development of the body to the fully erect position, and continued the horizontal postural treatments at his rooms.

At the end of eight weeks, not only was the functional condition markedly better, but the examination of the blood showed normal sugar and creatinin.

At the end of nine weeks from the time of his first examination, he returned home to continue his treatment there. At this time he was able to rise from chair without the aid of his

hands; he was able to walk without supporting the thighs with the hands, and by steadying himself with one hand upon the balustrade, was able to go over the stairs.

The patient was then seen at intervals of three or four months for several times, with gradually lengthening intervals, for three years. During this time the general exercises were continued, and apparatus was used to hold the body erect until the muscles had become adequately trained for their work. No drugs were used after first leaving the hospital. Once when the blood examinations were made, the sugar was found to be low, this apparently being due to general fatigue and less regular use of the physical routine. This was quickly corrected and the patient, when last seen, in 1919, was fully well and equal to all that should be expected of an active man. He is regularly at his business and, from letters received,—the last within a month,—his condition is apparently as good as when last examined.

The case is reported for what it is worth. There is much that cannot fully be explained, but the result followed definite reconstruction measures which have been of help in other conditions with disturbed physiology, and this is suggestive. With more experience and with new methods of estimating physiologic conditions, it may be possible to explain the features now imperfectly understood. As a case, it has been a great stimulus to me in the study of other perplexing medical problems, and it is my hope that it will serve the same purpose with others.

HAEMATURIA.

BY EDWARD L. YOUNG, JR., M.D., BOSTON.

A LITTLE over a year ago a series of one hundred cases of haematuria, seen in private practice, was presented.¹ In view of the conclusions reached, it seemed worth while to get every possible view of the subject covered. With that in mind I went over all the cases on the genito-urinary service of the Massachusetts General Hospital for a period of ten years, to see how far the facts obtained from the hospital class of patient would bear out the conclusions reached in considering a series of private patients. It must be borne in mind that these cases are those which are serious enough to have been sent into the hospital for treatment. Accordingly they do not include certain cases of acute urethritis and prostatitis, and a few cases of urethral polyp and certain cases of papilloma of the bladder treated in the out-patient by fulguration. What proportion of the total number this latter group of out-patient cases represents

I have no means of telling accurately, but I believe it is relatively slight. One exception must be noted. Chronic nephritis is a common source of bleeding (I believe the commonest cause of presence of small amounts of blood in the urine that there is) and most of these cases, except where they reach the genito-urinary service on a mistaken diagnosis, as well as all cases of acute nephritis, were of course not seen in this series. With these exceptions, I think the cases given represent a very good view of the condition.

About 46 per cent. of all cases in the House during this time had haematuria at some stage of the game or other, as a prominent symptom, and by that I mean gross blood which attracted the attention of the patient and about which he had no doubt in talking, even though it did not necessarily send him to the doctor at the time he first noticed it. It is interesting to note that nearly every diagnosis represented in the House cases showed haematuria at some stage or other. It may well be that the final diagnosis on which the patient left the hospital may not have been the actual cause of bleeding, but no other pathological condition in the urinary tract was ever found.

LIST OF CASES SHOWING HAEMATURIA.

Carcinoma of Bladder.....	57
Papilloma of Bladder.....	21
Prostatism, Obstructing	
1. Benign	88
2. Malignant	17
Hypernephroma	8
Sarcoma of Kidneys.....	1
Urinary Tuberculosis	89
Genital Tuberculosis	17
Stone in Bladder.....	41
Stone in Ureter.....	48
Stone in Kidney.....	70
Essential Haematuria	22
Pyelitis	20
Stricture	41
Tumor Anterior Vaginal Wall.....	1
Chronic Nephritis	2
Diverticulum	5
Hydronephrosis	7
Radium Burns of Bladder.....	1
Energeted Cystitis	1
Stricture of Ureter.....	4
Ruptured Kidney	3
Nephroptosis	5
Foreign Body in Bladder.....	1
Horseshoe Kidney	2
Angioneurotic Oedema	1
Urethritis	1
Chronic Inflammation Bladder.....	1
Vesical Fistula	6
Prostatic Abscess	4
Urethral Fistula	1
Periurethral Abscess	1
Nephrectomy Sinus	2
Prostatic Calculus	2
Seminal Vesiculitis	3
Echinococcus Cyst of Kidney.....	1
Ulcer of Bladder.....	3
Arteriosclerosis	1
Extravasation of Urine.....	1
Bilharzia	1
Perinephritic Abscess	3
Necrosis of Bladder.....	1

This list speaks for itself. There are a few things, however, that are worth emphasizing.

If we include tumor of the bladder and kidney, prostatism, tuberculosis and lithiasis together, they make up four hundred and fifty-seven cases, or 76 per cent. of the total number. All of these are serious conditions. Urinary lithiasis, however, is the least dangerous of all and should give a good prognosis. If these cases are omitted it leaves two hundred and ninety-eight, or practically 50 per cent. of the total number, in which the cause of the haematuria lies in a disease which is serious at the best, in which treatment must be undertaken at the right time and with great care in order to give any but a serious prognosis.

Let us next consider the haematuria as a presenting symptom without other accompanying symptoms. We find the following list very significant:

HAEMATURIA AS A PRESENTING SYMPTOM.

	Total No. Cases.	Bleeding.	Presenting Symptom in.
Carcinoma of the Bladder..	60	57	50
Papilloma of the Bladder..	21	21	16
Prostatism—Benign	181	88	4
Prostatism—Malignant.....	33	17	2
Hypernephroma	10	8	2
Sarcoma of Kidneys.....	1	1	1
Urinary Tuberculosis.....	147	89	5

If we except tumor of the bladder, bleeding was in the majority of cases only one symptom out of many, even though in certain cases it was the main thing which brought the patient to the clinic.

In stone of the bladder and kidney it is interesting to note that it can be the presenting symptom with none of the other classical symptoms present to point toward stone.

The ordinary urethral stricture is not generally associated with haematuria in the minds of most of us, yet it is a striking fact that forty-one cases, out of a total of one hundred and seventeen treated during this time, had haematuria, although in none of them was it a presenting symptom. In all of these cases the diagnosis was of course proved as regards the stricture and carefully worked out as far as possible in ruling out other possible sources of bleeding.

I think that the other side of the picture, in regard to accompanying symptoms, will also bear emphasis; that is to say, a hypernephroma, or a renal calculus, for instance, may show itself with various symptoms, either with or without haematuria, and that in making a diagnosis all possibilities must be considered before coming to a definite conclusion.

According to this table, seventeen cases of tuberculosis of the epididymis showed urinary bleeding. This is absurd if we consider the infection as limited entirely to the epididymis.

It means, of course, that deep involvement is present.

There are twenty-two cases of so-called "essential haematuria," that is to say, gross bleeding from the kidney, in which it was not possible to make an accurate diagnosis. This series of twenty-two was discussed separately.²

In a series of seventy-four cases of neoplasm of the kidneys, studied by Barney,³ haematuria occurred in thirty-nine cases only. In the eleven cases here mentioned, nine had that symptom present. It is also interesting to note that two out of three ruptured kidneys had bleeding only as one of several symptoms. They were, of course, partial ruptures of long standing, but the mere fact of other symptoms apparently dominating should not lead us away from the possibility of such a condition. In view of the recent work done by Hunner,⁴ the small number of ureteral strictures is interesting. Microscopic blood was a common finding in his cases and it may be that, in common with many other urologists, we failed to recognize the lesser degrees of this condition, and only five of the most marked cases were satisfactorily demonstrated. It is important to know that four out of five of these cases had haematuria.

SUMMARY.

Haematuria as a symptom must always be viewed with suspicion as it is caused by a serious underlying condition in such a large percentage of cases.

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A REVIEW OF A YEAR'S THYROID WORK.*

By FRANK H. LAHEY, M.D., BOSTON.

FROM year to year, with a greatly enlarging thyroid background, we have had occasion to review and at times revise our conceptions and opinions regarding the various phases of thyroid disease; we accordingly feel that a presentation of the results of the review of this year's work will be of interest and value.

We still believe that a great many errors in thyroid treatment are constantly being made because of an inadequate knowledge of the clinical classification of thyroid disease and of the indications for operation in each group. There has been no occasion to modify our views regarding these classifications and operative in-

dications except, perhaps, to stress one or two more strongly than in the past and to present our diagnostic difficulties as they have arisen in certain of these groups.

We still feel that adolescent goiter, the slight symmetrical enlargement occurring at or soon after the establishment of the menses,—an enlargement, if it be a true enlargement and not a prominence due to a thin neck, for the most part confined to the isthmus and occurring in long, thin-necked girls,—requires no treatment. We have seen none of these cases become toxic, nor have we seen any symptoms in connection with this enlargement which could be logically attributed to the thyroid. This is a different type of goiter from the colloid adolescent goiter seen in goiter belts and responding to the sodium iodide prophylaxis of Kimball and Marine.

We have many times seen tachycardia associated with this pubescent enlargement without other signs of thyroidism, and have had no small amount of difficulty in deciding whether it was of thyroid or of non-thyroid origin. Our opinion that these tachycardias were not of thyroid origin has been influenced by the fact that upon repeated metabolism examinations, the rate was either within normal limits or tended to maintain relatively lower increases (rarely above +25). We have also obtained considerable aid in this group of cases from the cardiologist associated with the clinic. Furthermore, we become more and more convinced each year that tachycardias of thyroid origin do not exist without other signs indicative of the disease, such as staring, loss of weight, myaesthesia, nervousness, or tremor. From our experience with these conditions, which is now of considerable extent, our conclusion is that a very distinct tendency exists to assume that when tachycardia and thyroid enlargement (no matter how slight) are associated, they can be accepted as being related. Hence we believe that when a tachycardia is present without other of the confirmatory clinical signs spoken of above, though there is a moderate goiter and even a moderately increased basal metabolism rate, one should be extremely cautious in attributing the tachycardia to hyperthyroidism.

We have seen a great many cases of goiter without hyperthyroidism. We have seen a great many cases of hyperthyroidism with little or no goiter. We have also seen a great many cases with increases in basal metabolism even accompanied by tachycardia, in which no hyperthyroidism was present. On the other hand, we have yet to see a case of hyperthyroidism (unless examined in bed during or after a long rest) in which tachycardia and increase in metabolism rate were not present.

Colloid goiters we continue to operate upon, when they are unsightly, when they are or

*Read before the Boston Surgical Society, December 5, 1921.



I.—ADOLESCENT GOITER.

Note the slightly prominent isthmus and faintly visible thyroid outline. This is the characteristic appearance of adolescent goiter. As a rule, they seek advice only for the prominence of the thyroid.



II.—ADOLESCENT GOITER.

threaten to be intrathoracic in location—and a great many do—and when they have been associated with hyperthyroidism.

In cysts and adenomata our operative indications have remained the same: in cysts, when they are unsightly, when they are or threaten to be intrathoracic in location, when they are producing pressure; in adenomata, when they are causing secondary hyperthyroidism, when there is danger of malignant degeneration. This last indication means, in our opinion, that all adenomata in patients over forty should be removed.

Regarding malignancy and intrathoracic location of adenomata, the sole change in our views is that we have become more impressed with the need of removal of these tumors, particularly in patients approaching the age in which malignancy is more apt to occur, since we have now seen several women succumb as the result of malignant degeneration of these tumors, having thus lost their lives from assuming that the tumors would always remain benign. This point should be particularly stressed, we believe, as there are no signs by which one may be led even to suspect the possible onset of malignancy. The variations are entirely those which indicate not the onset but the presence of malignancy, when, in our ex-



III.—A LARGE ADENOMA.

This is the type in which secondary hyperthyroidism may occur, or malignant degeneration appear. It is the type which should be removed for unsightliness if nothing else. The mortality in this type is practically zero.

perience, recurrence following removal is almost certain.

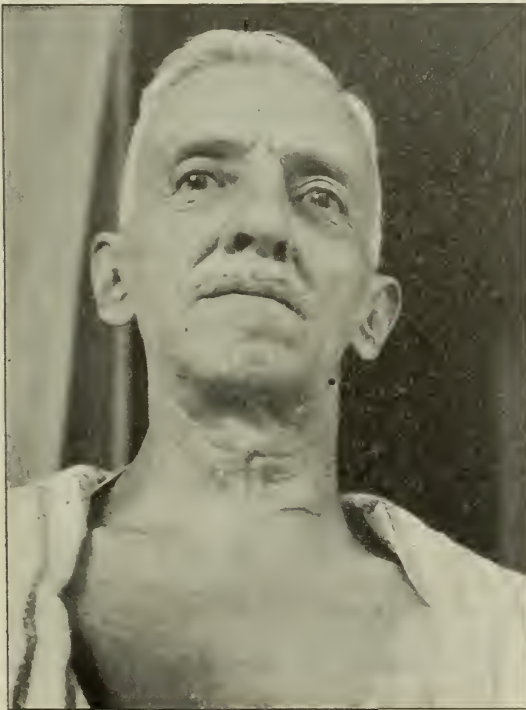
We have always been struck (and the more intensely with the increasing number of cases seen) by the number of cases of complete or incomplete intrathoracic or post-tracheal goiter which have come into our hands, without being previously recognized.

In our estimation, this lesion should be looked for by percussion of the upper chest for dullness and by x-ray for deviation of the trachea in all cases of goiter of any size, since its presence when the mass has become deeply intrathoracic undoubtedly increases the mortality of the operation.

Malignancy of the thyroid continues to be an extremely depressing phase of thyroid disease. The only light we are able to see in connection with this almost hopeless group of cases is in the removal, while still in the precancerous stages, of the adenomatous goiters which are present in patients at or approaching the cancer age.

We still believe that complete removal of the entire thyroid for undoubted and extensive malignancy is not justifiable. Our experience has been similar to that in other clinics, in that we have seen malignant disease appear only in those thyroids which have been goiterous for some time.

With the exception of the x-ray clinic at the City Hospital, where x-ray treatment is being carried out, we have continued to submit all



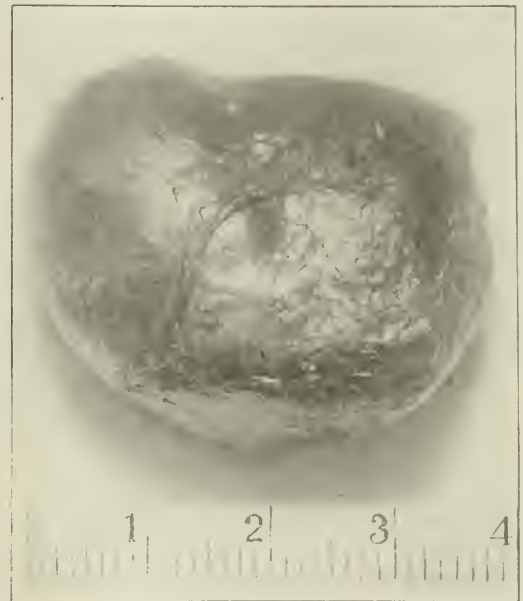
IV (a).—INTRATHORACIC GOITER.

(a) Note the absence of any visible goiter in this man's neck, yet in the two following illustrations it may be seen to be of considerable size.



IV (b).—INTRATHORACIC GOITER.

(b) Note the deviation and narrowing of the trachea, together with the intrathoracic mass. This is an X-Ray of the patient shown in (a).



IV (c).—INTRATHORACIC GOITER.

(c) A photograph of the intrathoracic goiter after removal.

cases of hyperthyroidism of any marked degree of toxicity to surgery, the eventual aim of which was the removal of a large proportion—four-fifths or more—of the entire gland. We have been led to pursue this course, first, because the mortality had always been within reasonable limits, 2.36% in the entire series, 1.17% in this year's series; and, second, because we feel that in our hands it has proved the measure which most certainly, most completely, most permanently, and most quickly produces relief in this group of cases. We know that certain cases of hyperthyroidism present remissions which are permanent in character, but we believe that all that may be accomplished by medical treatment consists of prolonged rest, first, with the purpose of pro-

teeting the patient from such injurious effects of loss of metabolism balance as are more obvious and more apt to occur in patients who are up and about: and second, with the hope that a period of remission will occur while at rest and prolong itself into a permanent remission.

Against this course are the relatively small number of cases obtaining a permanent remission, the fact that many become poorer operative risks, the small but certain number of deaths that may be attributed to this delay, and the undesirable consequences of prolonging the period during which the organism suffers the effects of the intoxication.

Regarding x-ray treatment, we feel that any measure assuming the attitude of a rival to surgery, since the latter has been generally accepted as the most satisfactory method of treatment in hyperthyroidism, should be readily capable of demonstration of its value. We feel, further, for the purposes of personal conviction and with no reflection on the clinics where x-ray is deemed a satisfactory measure, that its value should be demonstrable in a clinic under our management where the selection of cases is ours and where the interpretation as to cure or relief is also ours.

For this purpose, about eighteen months ago we established at the Boston City Hospital a thyroid clinic, where cases of hyperthyroidism are treated only by means of x-ray. In this clinic we have yet to see a case which even approaches the completeness of the relief accomplished by surgery. To be sure, our cases have been limited in number. A great many cases have been sent for treatment which were not cases of hyperthyroidism—and precaution has been taken to eliminate every case which did not belong unquestionably under the head of hyperthyroidism. A sufficient number have been treated, however, so that at least a few striking results have been obtained. In fairness to x-ray, it should be said that a larger series of cases should be treated before a decision as to the result of this study is reached; further, that we as clinicians, not as trained roentgenologists, have no check upon the dosage being used. However, in this direction we have every confidence of the accuracy of dosage, as the treatment is conducted by a roentgenologist trained in x-ray dosage. In addition, it is to be noted that we have submitted to the roentgenologist a few cases of incomplete cures following surgical removal, particularly where too little had been removed and hypertrophy of the small remaining segment had occurred, and in none of these cases has relief been accomplished by x-ray, while very prompt relief has resulted from the removal of a considerable portion of the remaining segment.

For these reasons, then, taken as a whole, it continues to be our conviction that surgery with its proved efficacy should be the accepted

method of treatment in any thyroid clinic dealing with thyroid cases in large numbers, and that x-ray treatment should be reserved largely for an experimental clinic such as that which we are maintaining at the City Hospital.

We have also operated upon a number of cases which have received many x-ray treatments, and we cannot see that they greatly increase the difficulty of the operation.

We have now made over one thousand metabolism tests on over five hundred patients, each operated case having a metabolism test previous to each operative procedure and, if possible, one every two weeks between operative procedures if the poles have been ligated; while, furthermore, all patients showing increase in rate before operation have had their metabolism estimated before leaving the hospital. After leaving the hospital, all toxic cases have returned in two months for another test and in six months for still another one, in order that a control may be maintained on them. While all of the material accumulated as the result of this work has as yet not been completely grouped and studied, there are certain facts which have impressed us as being probably acceptable. The first and most important one, in our opinion, is that hyperthyroidism has not occurred in this group without an increase in basal metabolism rate, so that we feel strongly that operations undertaken upon patients with normal metabolisms will yield consistently poor results, since in most of the cases the symptoms will not have been of thyroid origin; second, that there are many border-line cases of neuroses closely simulating but not actually presenting hyperthyroidism, particularly those cases having associated tachycardias.

In this group repeated metabolism estimations should be made. In a majority of these cases the metabolism estimations will be found to be within or approximating normal limits, and in the remainder, even though the metabolism be increased (it will rarely run above +25 in cases of this type), decision in favor of hyperthyroidism should not be made unless very characteristic clinical signs are present as confirmatory evidence. We are certain, from experience based upon constant reference of this condition to us, that there are today literally hundreds of cases of neuroses under treatment for hyperthyroidism, many of whom are doubtless being operated upon.

As the result of the study of this material, we are convinced that basal metabolism tests, properly conducted, represent approximately the degree of toxicity of the disease. We cannot subscribe to any statement that it accurately represents toxicity: first, because as yet the method and process of intoxication is not determined; and second, because the only two methods of gauging toxicity at present are the effects of the condition, on the one hand, upon

the metabolism, and on the other, upon the patient's organism, and, unfortunately, the two sometimes do not check accurately. For now and then we see patients who are clinically quite toxic, yet have but moderately increased metabolism rates; likewise, the reverse has also been true occasionally.

Following ligation of poles, it has been the rule to see a drop in pulse rate, a gain in weight, and a fall in metabolism rate. In a not inconsiderable number of cases, we have seen a drop in pulse rate, a gain in weight, a general clinical improvement, but a rise in

An investigation of the pre- and post-operative metabolism rate in the last one hundred thyroidectomized cases of primary hyperthyroidism, the last test being made within an average of ten days after the partial thyroidectomy, showed an average drop of 66 per cent. Many cases, however, do not completely reach normal until a few weeks after leaving the hospital, and it has been our experience that in those cases persisting with moderate increases in metabolism rate, moderate symptoms of hyperthyroidism still persist, because sufficient thyroid tissue has not been removed,

BASAL METABOLIC RATE		
HYPERTHYROIDISM		
Mrs. Annie G.	Age-32 yrs.	
March 21, 1921	Bas. Met. Rate	+72
	Pulse Rate	126-148
	Body Weight	103.4 lbs.
March 31, 1921	Double superior pole ligation	
March 30, 1921	Bas. Met. Rate	+70
	Pulse Rate	118-126
	Body Weight	96.75 lbs.
April 12, 1921	Bas. Met. Rate	+61
	Pulse Rate	104-112
	Body Weight	105.4 lbs.
April 26, 1921	Bas. Met. Rate	+57
	Pulse Rate	78-90
	Body Weight	113 lbs.
May 11, 1921	Bas. Met. Rate	+52
	Pulse Rate	110-120
	Body Weight	115 lbs.
May 12, 1921	Right inferior pole ligation	
May 19, 1921	Left inferior pole ligation	
May 24, 1921	Bas. Met. Rate	+49
	Pulse Rate	94-109
	Body Weight	109.1 lbs.
June 6, 1921	Bas. Met. Rate	+59
	Pulse Rate	80-108
	Body Weight	118.75 lbs.
June 20, 1921	Bas. Met. Rate	+51
	Pulse Rate	108-112
	Body Weight	119 lbs.
July 19, 1921	Bas. Met. Rate	+46
	Pulse Rate	100-108
	Body Weight	122.5 lbs.
July 20, 1921	Partial Thyroidectomy	
July 27, 1921	Bas. Met. Rate	+17
	Pulse Rate	76-94
	Body Weight	113.75 lbs.

V.

A typical metabolism chart carried through the course of the surgical treatment. Note the progressive drop in metabolism with the advancement of the surgical procedures. Note also the similar drop in pulse rate and gain in weight.

metabolism rate. We were much disturbed by this at first, but where the clinical improvement has been obvious, the cases have endured well the final procedure of partial thyroidectomy. We are, however, as yet at a loss to explain this apparent inconsistency to our satisfaction.

Following partial thyroidectomy, the drop in metabolism has been consistent and certain.

BASAL METABOLIC RATE		
HYPERTHYROIDISM		
Mrs. Della W.	Age-29 yrs.	
June 26, 1921.	Bas. Met. Rate	+46
	Pulse Rate	148-164
	Body Weight	102.75 lbs.
June 29, 1921.	Right sup. pole ligation.	
July 6, 1921	Left sup. pole ligation.	
July 13, 1921	Bas. Met. Rate	+47
	Pulse Rate	114-120
	Body Weight	100 lbs.
July 27, 1921	Bas. Met. Rate	+55
	Pulse Rate	120-126
	Body Weight	107 lbs.
Aug. 11, 1921	Bas. Met. Rate	+57
	Pulse Rate	118-128
	Body Weight	115 lbs.
Aug. 28, 1921	Bas. Met. Rate	+76
	Pulse Rate	98-110
	Body Weight	117.25 lbs.
Aug. 29, 1921	Double inf. pole ligation.	
Sept. 4, 1921	Bas. Met. Rate	+50
	Pulse Rate	118-126
	Body Weight	111.5 lbs.
Sept. 19, 1921	Bas. Met. Rate	+37
	Pulse Rate	94-110
	Body Weight	126.75 lbs.
Oct. 3, 1921	Bas. Met. Rate	+65
	Pulse Rate	102-114
	Body Weight	132.25 lbs.
Oct. 23, 1921	Bas. Met. Rate	+75
	Pulse Rate	110-120
	Body Weight	134.25 lbs.
Oct. 24, 1921	Partial Thyroidectomy.	
Nov. 2, 1921.	Bas. Met. Rate	+27
	Pulse Rate	92-100
	Body Weight	126 lbs.

VI.

An atypical metabolism chart carried through the course of the surgical treatment. Note, as compared with the previous typical chart, the progressive rise in metabolism rate, although the clinical improvement as represented by the gain in weight and drop in pulse rate is even more evident than in the preceding typical chart.

and that a further drop can be accomplished by further removal.

Finally, as the result of our experience with the metabolism test in this disease, we are sure that it is a very grave error to consider thyroid disease in terms of increased metabolism, and that such a test can be of as much harm

as good unless carefully weighed and correlated with the history and clinical signs presented by the individual.

In the past year and a half we have had Dr. Burton Hamilton associated with us in the clinic in an attempt to obtain some accurate knowledge of thyroid hearts; at our request, he has submitted the following short résumé as the result of his observations on the cases in our clinic for those eighteen months.

Hearts, in hyperthyroidism, fall into two classes, with but very few intermediate cases. The larger class, on clinical examination, shows no signs of heart damage. Patients of all degree of toxicity (up to death), and of short and long duration of their hyperthyroidism, are in this class. Nor has heart failure occurred here. In fact, if these patients are cured of hyperthyroidism, they are left with sound hearts, so far as can be told.

The smaller class shows definite heart damage, with occurrences of heart failure. In these cases, auricular fibrillation, either established or occurring in paroxysmal attacks, is the rule. This condition can always be improved by digitalization. In our clinic, more than half of such cases in the last eighteen months have been cured of auricular fibrillation after operation and digitalization. On the other hand, we see no reason for digitalization of hyperthyroidism cases that do not have auricular fibrillation.

The immediate statistics of the clinic for the past year are submitted. From January 1, 1921, to January 1, 1922, 342 thyroid operations have been done. Ligations of one or both superior poles have been done 78 times, with one death. Ligations of one or both inferior thyroid arteries behind the internal jugular and on the inner border of the scalenus anticus, has been done 12 times, with no deaths. Injection of boiling water has been made 20 times with no deaths, and 232 operations directly upon the thyroid have been done. Twenty-four have been hemithyroidectomies on patients deemed too toxic to endure the complete operation, in each case the remaining lobe being removed as soon as the patient's condition permitted.

There were two cases of tetany of short duration this year, and, strangely, none in the cases previous to this year—considerably over five hundred in number.

There were five cases of malignancy this year, all of which have died since leaving the hospital, with the exception of one recent case, in which a specimen was removed for pathological report. This measure we consider wise unless clinically there is no doubt whatever as to the malignancy, as we have had three cases of the so-called woody thyroids in which the consistency of the thyroid has been very similar to that of malignant thyroids, but has

not proved to be malignant on microscopic examination.

We have operated upon one lingual thyroid and, in a baby five months old, one large colloid goiter causing pressure.

The total number of deaths has been four—one from thyroidism following ligation of one pole; one from probable cardiac failure in a patient with a past history of cardiac decompensation and with several attacks of auricular fibrillation, upon whom a hemithyroidectomy was done, both poles have been previously ligated and a hemithyroidectomy having been done by another surgeon some years previously; one from pneumonia following the removal of a large intrathoracic and post-tracheal goiter, and one of unknown cause in a woman of fifty, strong and well, with non-toxic adenomata, operated at the Boston City Hospital, in the students' clinic, under ether.

In conclusion, while we are fairly well satisfied with this year's mortality rate, 1.17 per cent., we feel that it should be reduced still further, having in mind, however, that mortality in a clinic such as ours, where patients with very serious thyroid lesions are being constantly presented to us, cannot be eliminated without refusing patients of this group.

PRELIMINARY REPORT OF THE MENTAL CLINIC OF THE WORCESTER STATE HOSPITAL.

By GEORGE F. CALDICOTT, M.D., WORCESTER, MASS.,
Assistant Physician, Worcester State Hospital.

THE Out-Patient Department of the Worcester State Hospital was begun at the Summer Street Department in June, 1921. The purpose of the clinic was to offer to the people of this section of the State all the advantages of a psychopathic hospital.

At first the idea was somewhat new to the public, but the opportunities for help offered by the clinic were soon recognized. Before long not only were psychiatric cases, but also neurological syphilological, and cases of children who were retarded in school or who were conduct problems, were being presented for diagnosis, treatment and advice. Later the task of examination of school children (3 years or more retarded) in fifty-eight towns, (designated by the Mental Commission) came to be placed under this department.

The clinic has available physicians, social workers, a psychologist and nurses, all trained along this kind of work.

The routine examination consists of searching inquiry along lines of physical examination, family history, personal and developmental history, school progress and tests, practical knowledge, economic efficiency, social history and reactions, moral reactions, mental and

psychological tests; the routine taking of blood for Wassermann test, together with laboratory examinations as indicated.

If needed, such facilities as x-ray, electrical apparatus, fluoroscope, etc., are available for detailed study at the hospital. From these data a composite and complete picture is made from which to draw a conclusive diagnosis. The diagnosis being made, advice on disposition of the case is given, and patients who can receive treatment at the hospital are given attention free of charge.

Our facilities for treatment at the Worcester State Hospital are: a complete hydrotherapeutic department, electric baths, violet ray, baking apparatus, occupational therapeutic department, together with provisions for modern work along mental, psychoanalytic and re-educational lines. Administration of arsphenamin, neo-arsphenamin for syphilis, and treat-

ment along general medical lines of any condition is carried out.

In disposition of cases not psychotic we act in association with social service, relatives of patients, or out-patient departments of other hospitals, toward securing, where needed, surgical treatment, proper or corrective supervision, readjustment of patients, or whatever other disposition is deemed best.

To date there have been ninety cases seen and completed by the department; twenty-seven cases are in the process of completion. This makes a total of one hundred sixteen new contacts that have been made since the opening of the clinic, some of which are being continued, as the patients are reporting bi-weekly for treatments; such as electrical, arsphenamin, etc.

The type of cases handled by the Out-Patient Department are:

I.—PSYCHOTIC.

<i>Diagnosis</i>	<i>No.</i>	<i>Recommendations</i>	<i>Disposal</i>
Dem. Præcox	1	Hospitalization.	Committed to Worc. State Hospital.
Senile Dementia	1	Sanatorium treatment.	Relatives carrying out advice.
Manic Depressive	2	Hospitalization.	Committed to Worc. State Hospital.
Psychosis with cerebral embolis.		Hospitalization.	Temporary care at Adams Nervine by relatives; later committed to W. S. H. Condition unimproved.
Neurosis	3	Electro and Hydrotherapeutic treatments, with Psychoanalysis.	Treatment carried on at W. S. H. Out-Patient Dept. Improvement seen.
Neurasthenia	2	1. Electro and Hydrotherapeutic treatment. 2. Readmission to hospital.	1. Carried on at W. S. H. Out-Patient Dept. 2. In hosp. Condition improved.

II.—FEEBLEMINDED.

<i>Diagnosis</i>	<i>No.</i>	<i>Recommendations</i>	<i>Disposal</i>
Simple	9	1. Institutional care. 5. Special Class and Man. Train. 2. Corrective supervision at home. 3. Institutional care.	Admission pending. In hands of relatives. Being carried out. Advice not followed.
Delinquent	6	6. Institutional care.	4. Admitted to feeble-minded school. 2. Admission pending. Patient disappeared.
With Syphilis	1	Institutional care and Syphilitic treatment.	1. Advice not followed.
With Epilepsy	3	Institutional care.	2. Patient to report in six months. 3. Admission pending.

III.—NEUROLOGICAL.

<i>Diagnosis</i>	<i>No.</i>	<i>Recommendations</i>	<i>Disposal</i>
Cerebral Irritation associated with Tuberculosis.....	1	Tubercular hygiene schedule planned for patient and family, in care of Board of Health Nurse.	Plans being carried out.
4. Post cerebral hemorrhage paralysis	1	Schedule planned for patient. Moderate exercises, modified diet, etc.	Plans being carried out.

IV.—SYPHILITIC.

<i>Diagnosis</i>	<i>No.</i>	<i>Recommendations</i>	<i>Disposal</i>
Cerebral Spinal Syphilis.....	4	Intensive bi-weekly treatments.	3. Treatment carried out at W. S. H., O.P.D. 1. Patient disappeared.
Secondary Syphilis.....	1	Intensive bi-weekly treatments.	Treatment carried out at W. S. H., O.P.D.
Tabo-Paresis	2	Intensive treatment and hospital care. O.P.D. to report.	Advice not followed.

V.—WITHOUT PSYCHOSES.

<i>Diagnosis</i>	<i>No.</i>	<i>Recommendations</i>	<i>Disposal</i>
Chorea	1	Referred to Nose and Throat Specialist.	Given treatment at W. S. H., O.P.D. Condition improved.
Tonsils and Adenoids plus speech defect	1	Removal of tonsils and adenoids.	Tonsillectomy arranged for at Memorial Hospital.
Hyperthyroidism (Adolescent)	1	Quiet mode of living, rest, fresh air, good food. as scheduled.	Plans being carried out. Condition improved.
Maladjusted—			
(a) School.	1	Treatment for ears.	Advice given to teacher and School Nurse as to their attitudes toward patient. Condition improved.
(b) Home.	3	Remove patients from present homes. Place in good care.	Further placement in hands of Children's Friend Society.
(c) Social.	1	Remove patient from own home; attention to recreation.	Arrangements pending.
Conduct Problem.	1	Replacement.	Patient in hands of Children's Friend Society.
Routine O.P.D. Examination. .	11	Supervision; more thorough study and investigation.	Patient in care of Girls' Welfare Society.

VI.—UNDIAGNOSED.

<i>Diagnosis</i>	<i>No.</i>	<i>Recommendations</i>	<i>Disposal</i>
Routine O.P.D. Examination	1	Further investigation; patient to report to clinic again in 6 months.	Patient being cared for by Girls' Welfare Society.
Routine O.P.D. Examination	5	Patients to report in six months.	None made.

VII.—PATIENTS ON VISIT FROM

<i>Diagnosis</i>	<i>No.</i>	<i>Recommendations</i>	<i>Disposal</i>
W. S. H. reporting regularly every 6 mos. at O.P.D.	3	Advice given suitable in each case.	None made.

SCHOOL OUT-PATIENT CLINIC—TYPE OF CASES SEEN.

FEEBLEMINDED.

<i>Diagnosis</i>	<i>No.</i>	<i>Recommendations</i>	<i>Disposal</i>
(a) Simple F.M.	16	Special classes—training along manual lines, correction of pathological conditions.	Arrangements pending for carrying out recommendations.
(b) Feeble-minded requiring institutional care	1	Institutional care.	
(c) Feeble-minded potential psychotics	2	Special classes—training along manual lines—to report to W. S. H., O.P.D., every 6 months.	Arrangements pending for carrying out recommendations.
Diagnosis deferred	3	To report in 6 months for further study.	
Cases in partial state of completion	27	Pending.	

The number and variety of the above cases indicate the value of some place to which the public may bring cases of this type for diagnosis, advice and treatment. In most instances where final disposition was arrived at, there has been decided improvement seen.

From the more modern psychiatric standpoint the subject of psychoanalysis in cases of neurosis is perhaps a most interesting subject. In our cases the results have been fairly good and one case stands out as having recovered completely after a psychoanalytic examination series.

There can be but little doubt that the conflict and antagonism between the conscious and the disturbed subconscious mind is responsible many times for symptoms manifested by physical symptoms as digestive upsets, pain, insomnia, etc. Once having pointed out to

the patient the unnatural or unusual facts not accepted or thrust out of the conscious mind, but by which subconscious state has been deeply impressed, it is surprising to see many a troublesome case showing physical symptoms clear up and become well. The field certainly is one along which much good work can be accomplished, and many of the vague cases could be cured which have been despaired of by so many of the outside physicians.

One of the biggest problems seen in connection with our work is the proper hygiene and handling of the situation of young adult delinquents. Repeatedly, cases presented at the clinic with a long court record for petty larceny; for immorality, prostitution, etc., or for being unmanageable and wayward. The frequency of such cases is fairly high, and examination demonstrates in the majority of cases

that the individual is feeble-minded and unable to meet or maintain the standards set by convention.

This is further augmented by the fact that being untrained in any line of work the individual oftentimes must resort to self preservation, *i. e.*, stealing, etc., and fall prey to every demand and influence of those about him. Such cases heretofore, on falling into difficulty, have for the most part been sentenced to prisons, reformatories, etc. The underlying cause is not sought for and only means for restraint considered.

The end-result is usually an individual who has lost love for mankind and who, being unable to secure employment along average lines, must accept the more distasteful tasks and least remunerative work. He is not accepted by his co-workers, and is made to feel his inferiority by their constant rebuffs. Being excluded from the better influences of life and not even being shown the proper bounds of convention, he at last repudiates many of the so-called humane standards, and little by little builds those more to his own liking. Result: conflict with authorities and intensification of his misunderstanding of mankind by their application of so-called "correction" to a mind whose condition or mental capacity they have never thought to question. What result other than the repeated violation of standards can be expected when one is not shown the purpose or given asset which will enable him to live up to normal standards?

At the present time, however, the local courts and welfare associations are becoming very keen in this respect, and now are presenting the younger of their cases for examination. Where radical disposition is required, the average cases are sent to schools for feeble-minded in order that the patient's viewpoint of life and mankind may be corrected. He is taught (if capable) a trade which will serve him when turned into the community again, and as a result we have after a time a person able to secure his own living by a respectable trade and who is able to care for himself. Other cases of mild nature merely require kindly, constructive home supervision and practical training.

The vital point, however, is not to wait till the feeble-minded child has reached adult stage and is already a community problem, criminal, and expense to the district in which he lives. These cases should be seen and cared for from the early school years. Their training should be such as to (a) establish confidence in mankind; (b) to be taught as much as they can absorb mentally and (c), most of all, to be manually trained as a shield against drifting aimlessly and helplessly against the present-day stress of life when they are ready to leave

school. This then leads us to the present-day work seen in our school clinic work.

We find that here, for almost the first time, the psychiatrist has an *entrée* into the community where he can study the earliest beginnings of mental twists and peculiarities of the child retarded in school (for any reason whatsoever), who has begun on the long road that leads to the maladaptations to life and living, whom one may eventually see at later stages in the State hospitals. For this reason the examination provided for by the State law gives the psychiatrist, especially the mental hygienist, his long-sought opportunity for doing preventive work.

For the child whose retardation is due to a definite mental under-development, the aim of our routine examination is to accomplish for him the avoidance of having to struggle through the regular grades—the trial of his teacher, the butt of his classmates' jokes—until that age at which he is allowed to leave school and, untrained, attempt his own support. Instead, we can prepare, not only the way for him to learn as much as he is capable of mentally, but also to get a trade training, and later, when he is ready to begin life for himself, he is just a little ahead, from a practical standpoint, of most of his normal fellow beings; and he certainly needs this head start, as his efficiency can never really rival theirs.

The true field of the mental hygienist, however, deals with still another all-important type of mental difficulty which the psychiatrist sees in early stages in some of the school children—the potentially psychotic, the child whose school work shows such erratic tendencies that each failure is laid to "stubbornness," lack of attention or interest, and to just plain "cussedness"—terms apt to be applied. This is apt to be the child in whose mind mental twists are already appearing. Here the treatment cannot be so definite and tangible as in the other cases, but proper supervision, good advice to parents and relatives regarding managing of abnormal or unusual tendencies; proper attention to general hygiene of good living; help toward the child's better adjustment; periodic presentation of the child for study at an out-patient department; and teaching the child only as much as he can comfortably learn,—all may go toward the prevention of a later complete breakdown requiring hospital care.

The desired "opening wedge" into the community seems to have been found in this examination of backward school children, and just in proportion as this work is done thoughtfully, thoroughly, and to the best of the individual psychiatrist's ability, will it be truly preventive mental medicine.

The striking relation also of general physical inferiority to mental backwardness is

brought out by a survey of cases examined. Many children are retarded in school by virtue of undetected bad eyesight and faulty hearing; and all too common is the case of the child whose backwardness gradually and satisfactorily disappear after a tonsillectomy or correction of some other pathological condition. These all have tremendous possibilities for a better adjustment and, discovered in time, many cases of misfits are prevented.

The high percentage (14%) of cardiac conditions noted was fairly striking. Among the lesions found were those of mitral regurgitation, mitral stenosis, and several cases of cardiac arrhythmia of nervous origin. There can be but little question but that the average frequency with which pathological heart conditions are found is decidedly raised by the great number of cases found among these feeble-minded children. This is interesting additional evidence of the fairly constant physical inferiority associated with these children.

Malnutrition also shows prominently as characteristic of these children. In our series the percentage ran as high as twenty-two. The degree of malnutrition ranged from moderate to extreme. Indeed, so constant was this condition found, that we are coming to believe more and more that fatigue posture, the pinched, matured face of the ill-nourished child, is a fairly constant guide to the retarded scholar. It is apparent also in most of these cases, that absorption of toxins from intestines (in most cases the patient complained of habitual constipation) is an added factor, and adds greatly to the difficulty under which children of this class labor. Pathological tonsils and adenoids, and teeth needing dental care, were found in twenty-five per cent. of cases.

Where the above conditions are seen so frequently in retarded children, it would seem high time that the general profession and public at large awoke to the fact that the school child is not a mechanical apparatus, and requires a little better care than is given to the average domestic animal. The time has come when the mental hygienist must teach the public that psychiatry along the above lines is in many cases no longer a vague, intangible affair, but has a practical and definite foundation. We are at a stage where abnormal or retarded children, and adults, first, must be brought to normal physical standards; must receive the benefits of nutritional clinics if needed and must have corrected all pathological conditions. The ideal condition which eventually must come is the operation of a mental clinic, hand in hand with the other constructive clinics which, if not already established, should be, in every town for care of our school children.

Concerning the potential psychotic children, we can for the first time keep them under ob-

servation, correct, where possible, potential mental conditions before a stage is reached where hospital care is needed; or where active psychosis exists, make provisions for removal of the child from contacts where he may eventually do some distressing act before being considered, all too late, as fit for commitment. Such are some of the ends which it is the aim of this clinic to accomplish.

The foregoing tables have given some idea of the scope of cases presented at the Hospital and School Out-Patient Clinics. Both fields are rich in possibilities; one for doing treatment on actively defined psychotic states, the other for doing preventive work. The latter field offers without any doubt the real key to the modern solution and logical handling and consideration of mental diseases.

Judging from the demands made for the past six months on the clinic, the outlook for the future is reassuring. It labors somewhat under the handicap of having to transform in the minds of the public the idea of the "asylum" into a new and as yet not too well understood out-patient department of a hospital for mental disease. The seed sown in the past six months seems to have lodged in fertile soil for such work, however, and with progress in the future, keeping pace with the demands of the past few months, the clinic hopes to thrive, increase and aid in the solution of the problems associated with psychiatry.

SPINAL AND CISTERN PUNCTURE, WITH LAVAGE, FOLLOWING APOPLECTIFORM ATTACK IN PARESIS.

By A. H. RUGGLES, M.D., PROVIDENCE, R. I.

AND

A. T. WYATT, M.D., PROVIDENCE, R. I.

Butler Hospital.

IN the course of general paresis, seizures, often with evidence of cerebral hemorrhage, are seen. Certain of these seizures are spoken of as apoplectiform attacks and usually pass off in from a few hours to a few days. Oppenheim says, "We have no certain knowledge as to the causes of these attacks. It has been assumed that circulatory disturbances, small hemorrhages, local edema, or even a local aggravation of the underlying pathological process (encephalitis) may give rise to the symptoms."

The following case seems to indicate rather definitely the presence of a severe intracranial hemorrhage as a cause of such an apoplectiform attack:

CASE. J. R. W. Admitted April 6, 1920. Age 39. Widower. F. H.—Nothing remarkable. P. H.—At 18 he contracted syphilis. Ten years ago was admitted to Johns Hopkins Hospital with a gastrointestinal condition. For

the past ten years has been in very poor health. Four years ago is said to have had four intraspinal and several intravenous injections. P. E.—Right pupil large and irregular; left pupil smaller; neither react to light nor accommodation. Slight tremor of the tongue. Heart and lungs negative. Abdomen negative. Knee-jerks—Right increased, left normal. No other abnormal reflexes. Cranial nerves negative. Urine examination negative. Blood Wassermann negative with acetone, 4+ with cholesterin. Spinal and cistern fluids 4+ with acetone and cholesterin. M. E.—Patient has considerable emotional instability, blunting of moral sense and defect of both remote and recent memory. He knows that he has had syphilis, but does not appreciate that he has a psychosis. Has markedly defective judgment. No hallucinations. Delusions not prominent, but those which arise are expansive in type. Is irritable and fabricates freely. Diagnosis—General paresis.

April 20, 1920—Cistern pressure was estimated at 140 mm. Between April 20 and September 2, 1920, patient had sixteen cistern injections of serum prepared by Swift-Ellis method. On September 2, blood Wassermann and cistern fluid were both negative with acetone and cholesterin.

Treatment is discontinued, as both blood and spinal fluid have become negative. In spite of this fact, there is a rather marked mental deterioration which treatment can hardly be expected to modify.

December 8, 1920—Patient is almost always in a good-natured, very self-satisfied state of mind—greets people with considerable familiarity and has a very fine opinion, apparently, as to his ability and as to the quality of work which he is doing in the workshop. In reality, his work is poor and it is hard to keep him on any one job.

October 1, 1921—During the past 10 months there has been no essential change in the patient's condition. No further treatment has been given. The patient continues to show a moderate degree of parietic mental deterioration. He is unreliable, irritable at times, occasionally expansive, and shows poor recent memory.

November 8, 1921—Today patient complained of being dizzy, and fell to the floor. He was placed in bed, and on examination, it was found that his head was deviated to the right, and eyes showed conjugate deviation to the right side. Tongue, when protruded, was protruded toward the right. Extremities on the right side were found to be moderately spastic when attempt was made to move them. Patient was not unconscious; would answer questions after they were repeated several times, and was able to move all of his extremities. Appar-

ently could not move his head. Lumbar puncture was done at two different levels, and from both punctures bloody cerebrospinal fluid was obtained which coagulated rapidly. His right patella reflex gave a more prompt response than the left, but was probably not increased. No Babinski or ankle clonus present. Abdominal reflexes were present and active on the right side; absent on the left. Cremasteries absent. Right triceps jerk present and active; left absent.

November 10, 1921—Patient had a cistern puncture done upon him this morning and about 40 cc. of almost pure blood was obtained. He spent a very restless night, but this morning was much quieter. He shows no symptoms of pressure; has lost the contracture of the right side of the head, the deviation of the eyes and the hypertonicity of his right side.

November 12—Cistern puncture was done on patient this morning and a few drops of blood-tinged fluid was obtained under very low pressure. Lumbar puncture was done at the same time and a dry tap was obtained. About 20 cc. of saline was injected through the cistern needle and about 40 through the lumbar puncture needle. While injecting saline through the lumbar puncture needle, the pressure in the cistern increased and the flow also. About 15 cc. more was allowed to run out, and the needles were removed. Patient's condition is practically unchanged.

November 15—Cistern puncture was done on patient this morning. A few drops of slightly blood-tinged fluid was obtained under very low pressure. About 30 cc. of saline was injected through the needle and about 10 cc. allowed to run out. The returning fluid was only slightly turbid. Patient's condition remains unchanged.

November 19—Cistern puncture was done on patient this morning and a few drops of very bloody cerebrospinal fluid was obtained; 22 cc. of salt solution was introduced and the needle removed. Condition is very good at the present time; he has no evidence of spasticity and, physically, he is approximately the same as he was before this attack.

November 26—Cistern puncture was done this morning, and spinal fluid was perfectly clear and under approximately normal pressure. Condition remains unchanged.

December 16—One week after the last cistern puncture, the patient was allowed to get out of bed and walk around the ward. About one week later he returned to his work in the occupational therapy department of the hospital. Since that time, his work has been very poor and he is quite noisy and unable to concentrate very long on one job. Physically, his condition is the same as before the hemorrhage.

Blood Wassermann negative with acetone and cholesterin.

Spinal fluid Wassermann ++++ with acetone and cholesterin.

This case would suggest the value of spinal and cistern puncture as a diagnostic aid and as a possible therapeutic procedure in some cases of suspected intracranial hemorrhage.

EVALUATION OF INTELLIGENCE TESTS IN CRIMINAL CASES.

BY GEORGE L. WALTON, M.D., BOSTON.

No one who practised neurology at the time when there was no standardized method of measuring the intelligence in cases of retarded development can fail to recognize the great advance made in the study of such cases by the work of Binet and Simon. These authors, in 1904, in response to an educational requirement in Paris, formulated, by examining selected groups, standard tests by which to measure, in terms of mental age, the development of intelligence in children. This epochal work, in spite of early criticism, quickly proved its worth, and the original Binet-Simon Scale, with several revisions, still holds its own.¹

The Scale was intended for a measure of intelligence. Terman states that it is neither a test of insanity, nor of the emotions or the will, except as they are shown in testing the intelligence. It certainly was not designed as an aid to the courts in determining the responsibility or irresponsibility of the criminal adult. Even in the field for which it was designed, the test does not stand alone, as Terman adds, but will always need to be interpreted in the light of supplementary information. This supplementary information is listed in the blanks of the Massachusetts School for the Feeble Minded under the headings,—physical examination, personal and developmental history, history of school progress, examination in school work, practical knowledge and general information, economic efficiency, social history and reactions, moral reactions. Of these none is more important than economic efficiency. In the case of an adult the investigation of his ability to support himself is at least as important as the determination of his mental age as measured by the intelligence test.

Again, leaving the question of feeble-mindedness in abeyance, the establishment of a mental age of seven by the Scale no more warrants the assumption of irresponsibility than the establishment of a mental age of sixteen guarantees responsibility. This brings us to the question, What do we mean by responsibility?

In the business world the word *responsibility* means ability to meet contracts and pay bills.

With this meaning we have nothing to do in this connection. The other meaning of the word *responsible* is *accountable*, or *answerable*. In a way, every living thing is answerable for every action. The rattlesnake has to answer with his life for the injury he does, though he is not responsible in the criminal sense. He coils and springs by instinct. Presumably he does not know that it is wrong thus to injure the innocent intruder on his privacy. Not every kind of answerability, then, constitutes criminal responsibility.

For practical purposes Mercier's² definition of criminal responsibility is a fairly satisfactory one. He says that a person is responsible who is *rightly punishable*. In order to be rightly punishable he must will the act, intend the harm, and desire primarily his own gratification; the act must be done on inadequate provocation, and he must know and appreciate the circumstances in which the act is done.

The word *know* is so flexible a one as to require qualification. I may know that my friend mailed my letter last night because he told me this morning that he had done so. But in the eyes of the law my knowledge is only hearsay evidence. My friend is the one who really knows whether he has mailed the letter or not. Similarly, a child may know that an act is wrong because he has been told so, and yet he may fail to know it in the full sense of the word. To be fully responsible, as Mercier says, one must "know in the full sense of knowing the nature and quality and wrongness of the act." Sir Fitzjames Steven says that the idiot who cut off the head of the sleeping man for the fun of seeing him hunt for it when he woke, probably knew that it was wrong in the sense that it is wrong for the child not to learn its lesson. In a less extreme case the insane or semi-insane man may know in a sense that his act is wrong without realizing how wrong it is. This consideration brings up the question of limited responsibility.

Let us now take up the practical application of the intelligence test to the solution of these questions.

CASE 1. An uneducated Italian came to this country about eight years ago. He is now 28. He first worked, as water boy, in Maine, then on the railroad. Later he followed his father to Cambridge, alone, and went to work in a factory. He learned to tend his machine in the usual time, and proved a competent, steady and satisfactory employee. He supported himself and sent money home.

On the afternoon of the day of the murder he drank with other men in Boston. The evening he spent at a party of adults in Cambridge where he drank more. At midnight he went out with the musicians. An officer ordered them to go home, and in the ensuing altercation

he shot the officer. He then returned to the house and said "I shot a cop." He was put out of the house and was arrested on West Boston bridge. He denied having been at the party, and having shot the officer. Confronted with his companions next morning at the police station he called them liars for accusing him of the shooting, and offered an alibi for the entire evening. Later he said, "Let them go; I did it." At the trial he said that he took out the revolver to scare the officer, and did not mean to kill him.

The only other material testimony bearing on the question of feeble-mindedness, except the Binet, which gave him a mental age of nine (I. Q. 56), was the statement of his brother that he was not very intelligent, and the testimony of several witnesses that he played with children. Further questioning reduced this statement to the fact that he played with his brother's children, and that he spent the noon hour playing ball and tag, and fooling 'round with boys whose ages varied, according to different witnesses, from seven or eight up to fifteen or sixteen and over, with whom, according to some witnesses, no other young men played; according to others, other young men did play.

Was this young man feeble-minded? If he was feeble-minded, was he responsible? How much does the intelligence test help us in deciding these questions?

With regard to feeble-mindedness: Over against the rather vague testimony that he was not very intelligent, we must set the undisputed testimony that he stood so high in economic efficiency that he was able to support himself and send money home, and that he was intelligent enough to formulate a defense in the way of an alibi. Into the scale against the general statement that he played with children we must put the specific testimony that he spent that afternoon and evening with adults, and that it was in company with adults that he got into trouble. If we are to view the Binet findings in the light of supplementary evidence we cannot disregard these evidences of his economic efficiency and his normal social reactions. It was never intended that the Binet Scale should be so interpreted as to outweigh the dictates of common sense. Taking these things into consideration, we do not seem to have made out a very strong case of feeble-mindedness.

With regard to responsibility: His efforts to escape, his denial of the act, and his invention of an alibi would indicate that he knew he had done wrong and that he knew and appreciated the circumstances in which the act was done—to say nothing of the consequences it involved. He certainly drew the revolver voluntarily, on inadequate provocation, and for no one's gratification but his own. Whether he intended to

shoot the officer with it is a question of veracity, not of responsibility. The jury made no mistake, then, in regarding him as rightly punishable, or responsible. He was found guilty of murder in the second degree, and was sentenced to life imprisonment.

In the solution of these questions the intelligence test has played a minor part. Indeed, a mental age of nine, by the test, in an uneducated foreigner is not a serious matter. Yoakum and Yerkes³ give the following results of the study of intelligence in the army:

"Subjects obtaining a score of ten years (120 points) or more may ordinarily be recommended for regular military training; subjects between eight and ten years (96 to 119 points) should be considered for assignment to service organization or development battalion; subjects below eight years (96 points) should be considered for discharge."

The second case offers an element likely still further to limit the usefulness of the intelligence test in criminal cases, namely, the question of coöperation on the part of the examined. There is a marked contrast between the case of the child who has no incentive for doing other than as well as he can, and that of the criminal who knows that feeble-mindedness is a factor in his defense, and whose interests are far from furthered by the display of a high degree of intelligence.

CASE II. A young man of 28, of French extraction, born in Lowell, lived in Lowell till the age of ten, then went to Canada, then returned and worked at various jobs, none of which, I believe, he kept very long, but at which he earned substantial pay. His schooling stopped at fourteen. He served overseas, then returned to Lowell, where he seems to have lived a rather idle life, spending much of his time in the pool room with other young men.

The history of the murder was, in brief, as follows:

In company with another young man he held up a shopkeeper, the other young man holding the gun while he (the accused) emptied the contents of the till into his pocket. At the door the shopkeeper seized them. The other young man got away. The accused fired at the shopkeeper through his pocket, but failed to loosen his hold. They struggled across the sidewalk into the street, where he drew out the revolver and shot the shopkeeper through the head. He then made his escape through various streets and alleys, and was apprehended in the closet of an unoccupied house, with his revolver jammed.

It would be wide of the present mark to discuss the other personal and family history. The following are the facts that bear on the question of the value of the intelligence test:

Among other responses at an examination

a month and a half before the trial he subtracted 15 from 50 and 33 from 100. He told, correctly, how much he would earn in four hours at 35 cents an hour. He counted up to twenty, and backward from twenty with one repetition.

At an examination shortly before the trial, in which the complete Binet-Simon test was used, he showed an apparent mental age of only about six and one-half years (I. Q. 40).

At a third examination, which took place shortly before the close of the trial, through which the prisoner's attitude had been that of one having no interest in the proceedings, he appeared unable to count up to five either in French or English. At this examination he called a fifty-cent piece a quarter, and said that if he gave ten cents for two 2-cent stamps he would get back one cent in change. When asked the first day of the week he answered Tuesday, then changed it to Monday. He was given the heaviest and lightest of the standard weights (15 and 3 grammes) and told to place the heavier on the right and the lighter on the left. After a pause he put one on top of the other. The order was repeated, upon which he placed the 3 gramme weight on the right and the 15 gramme on the left. In short, if his answers to the tests given at this examination were taken at their face value he would have to be classed as little better than an idiot. When given the simpler of the picture puzzles with pieces to insert he put them all in wrong. The last one, that of the dog chasing the boy, he seemed unable to do at all, so was assisted by the question "What is the boy doing?" "Running away," he answered. "What is he running away from?" He then studied over the pieces, among them the dog running in the same direction as the boy, and chose the kitten which was facing the other way and standing still.

The lack of coöperation in this case was shown by

(1) The marked contrast between his conduct up to the time of the trial and the results of the examinations made at the time of trial. It would not be credible that a man who had earned money in this country and who had served overseas, who spent his time in a pool room, and who took part in this hold-up, whether as principal or as subordinate to a stronger will, should not know a half from a quarter dollar or be able to count up to five.

(2) The rapid increase of the apparent mental defect. Whereas, at the first examination he subtracted 15 from 50, and told how much he would earn in four hours at 35 cents an hour, at the third examination, two months later, he said that if he gave ten cents for two 2-cent stamps he would get one cent in change; at the first examination he counted up to 20 and back with one repetition, at the last he

seemed unable to count up to five. Such rapid deterioration might be compatible with dementia (which was not claimed) but would be out of the question in feeble-mindedness.

(3) The regularity with which he answered questions wrong. This, while not so conclusive as (1) and (2), is very suspicious and, taken in combination with the rest of the picture, is strongly suggestive.

The verdict was guilty of murder in the second degree: the sentence, life imprisonment.

The lack of coöperation does not, in itself, prove that the prisoner had a high degree of intelligence. Indeed, there is nothing, so far as I know, to prevent a feeble-minded person from exaggerating his feeble-mindedness, either through hope of reward or fear of punishment. It does seem fair, however, to conclude that the intelligence test has been of questionable value in this case, either for the diagnosis of feeble-mindedness or for the measurement, in terms of mental age, of the degree of feeble-mindedness if such be present.

REFERENCES.

- ¹ Complete directions for using the Stanford Revision (in the form of Terman's "Measurement of Intelligence"), as well as blanks for its use, are published by Houghton, Mifflin Company, Boston. Picture and block puzzles and standard weights are furnished by C. H. Stoelting Company, Chicago.
- ² Mercier; Criminal Responsibility. Clarendon Press, Oxford, 1905.
- ³ Army Mental Tests: Henry Holt & Company, 1920, page 100.

Current Literature Department.

ABSTRACTORS.

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THE ETIOLOGY OF RICKETS.

SWEET, G. B. (*British Medical Journal*, December 24, 1921) believes

1. That rickets due to a deficiency of fat-soluble A vitamin in the diet has not been proved.
2. It is primarily due to a diet actually deficient in fresh animal food, probably suitable protein, or to a disturbed digestive condition which prevents the assimilation of the same.
3. The striking metabolic changes in rickets are due secondarily to a deficiency of secretion of one or more of the endocrine organs and probably chiefly of the thymus gland.
4. Confinement in young animals, with its attendant evils of lack of sunshine, exercise, and cleanliness, are important factors in increasing the severity of the disease.

[J. B. H.]

PHYSICAL EDUCATION IN THE UNIVERSITIES OF THE UNITED STATES.

M'KENZIE, R. T. (*Edinburgh Medical Journal*, December, 1921) in a long and interesting article describes the methods of teaching physical education in the universities and colleges of this country. The details which he gives are largely concerned with what he does in his official capacity as Professor of Physical Education at the University of Pennsylvania. The article cannot well be reviewed, but is well worth reading as a summary of what can be done on this subject in one American university at least.

[J. B. H.]

DECAPSULATION OF THE KIDNEYS IN BRIGHT'S DISEASE.

WELLS, T. H. S. (*British Medical Journal*, December 3, 1921) believes that the operation of decapsulation of the kidneys is of value under two conditions:

1. As an emergency in eclampsia, uraemia, suppression of urine, etc. The more desperate the situation the more certainly it should be discussed. He believes that cases have been snatched from apparently impending dissolution by means of this operation.

2. In chronic cases where medical treatment has failed after a thorough trial. In both of the above classes the heart and arteries should be reasonably sound, which means that most success will be obtained in the first half of life.

[J. B. H.]

THE INFLUENCE OF FOODS RICH IN ACCESSORY FACTORS IN STIMULATING DEVELOPMENT IN BACKWARD CHILDREN.

CHICK AND DALYELL (*British Medical Journal*, December 24, 1921) in an elaborate article illustrated with numerous charts, tables, etc., present the details of the influence of food rich in the so-called accessory factors in stimulating development in backward children. They summarize their work as follows:

1. The addition of antiscorbutic juices and of fats containing the fat-soluble accessory factor was found to have a satisfactory result in stimulating growth and progress of nine very backward children, of ages varying from 12 to 31 months. The condition of these children before treatment showed that development had been retarded for many months.

2. The diet allotted for the children did not appear to be lacking in calories, but there was evidence that their food had been deficient in antiscorbutic principle and in milk fat.

3. It appears that deficiency of antiscorbutic material in diet had been an important cause of failure to grow. Eight of the nine children gave a history of previous attacks of definite scurvy, and two showed bony deformities which were probably of scorbutic origin.

4. It is not possible to determine whether the beneficial effect observed after enriching the diet with two accessory factors is to be attributed to the extra antiscorbutic or to the extra fat given; probably both factors were concerned. In some instances improvement in growth and remission of rachitic symptoms were observed after addition of antiscorbutic material to a diet already containing a fair allowance of milk fat.

5. The cases studied indicate that the child's capacity for recovery is considerable when conditions of deprivation are rectified; the normal standard could be approached in six to twelve months, even after twenty-four months of retardation in growth and progress.

[J. B. H.]

LIPODYSTROPHIA PROGRESSIVA, WITH REPORT OF A CASE.

SMITH, H. L. (*Johns Hopkins Hospital Bulletin*, November, 1921) reports in great detail a case of lipodystrophia progressiva which is remarkably well illustrated with photographs of the patient as well as some micro-photographs. He describes this condition in the following paragraph:

"Lipodystrophia progressiva is a relatively rare condition, beginning insidiously and usually in early life; caused, possibly, by endocrine dysfunction; not hereditary; does not endanger life, and is more commonly and more characteristically developed in the female. It is characterized pathologically by a slowly progressive, almost complete and probably permanent disappearance of the subcutaneous fat from the head, face, neck, upper extremities, and from the trunk as far as the pelvic bones and groin folds, and, especially in the female, by an increase in the subcutaneous fat of the buttocks, thighs and legs."

[J. B. H.]

PREGNANCY AND LABOR IN YOUNG PRIMIPARAE.

HARRIS, J. W. (*Johns Hopkins Hospital Bulletin*, January, 1922) has made a study of pregnancy and labor in 500 primiparae and concludes as follows:

"Based upon the study of the 500 patients comprised in this report, it seems permissible to conclude that pregnancy and labor are attended by no greater danger in the young primipara than in the older woman. On the other hand, the duration of labor is actually shorter. As our figures show that the size of the children is not inferior to that noted in older women, and that abnormal pelves occur quite as frequently, this result must be attributed to the greater elasticity of the soft parts. Consequently, speaking from a purely obstetrical point of view, the ages under consideration appear to be the optimum time for the occurrence of the first labor."

[J. B. H.]

THE RADIOGRAPHIC EVIDENCE OF THE INFLUENCE OF COD-LIVER OIL IN RICKETS.

PARK AND HOWLAND (*Johns Hopkins Hospital Bulletin*, November, 1921) in an article profusely illustrated with excellent x-ray plates, present the radiographic evidence of the influence of cod-liver oil in rickets and summarize their investigations as follows:

"In our studies, which have comprised in all some 50 cases, the results have been uniformly consistent. We feel justified in saying very definitely that cod-liver oil brings about a change in the bones which, if the diet be not too faulty, amounts to complete cure. The change is not noticeable at once, but is readily demonstrable in almost all cases by the end of a month. In two or three months so much infiltration with salts has taken place that the extremities of the bones, except for deformities, are practically normal, and only differences in the finer architecture of the ends of the bones indicate the previous existence of a rachitic process. We look upon cod-liver oil as a specific for rickets. We have not seen it fail in any single instance and we have known it to cure the rickets even though the children were dying of some other disease. Thus, one child with a sarcoma lost the radiographic evidences of rickets, though succumbing to the malignant growth, and another child, who was hanging between life and death as the result of a severe thoracic involvement and who finally died of pneumonia one month

after treatment with cod-liver oil, did not fail to show calcium deposition in the bones both by radiograms and by microscopical examination. We know of hardly another drug that in disease exerts so regular, certain and specific an effect as does cod-liver oil in rickets."

[J. B. H.]

EXPERIMENTAL INOCULATION OF HUMAN THROATS WITH VIRULENT DIPHThERIA BACILLI.

GUTHRIE, MARSHALL AND MOSS (*Johns Hopkins Hospital Bulletin*, December, 1921) present an elaborate article as a result of their investigations with experimental inoculation of human throats with virulent diphtheria bacilli. The conclusions of this important piece of work are here given as follows:

1. Virulent diphtheria bacilli present in the throats of healthy carriers are capable of producing clinical diphtheria and do not differ from those obtained from patients with the disease.

2. Virulent diphtheria bacilli retain their characteristics despite long residence in the human throat or transfer from one human being to another.

3. The guinea-pig test is a reliable index of the inherent ability of diphtheria bacilli to cause clinical diphtheria in susceptible human beings.

4. The Schick test is a reliable index of the presence or absence of antitoxic immunity against diphtheria.

5. Experimental diphtheria in human beings has a short incubation period, produces marked constitutional effects, and is accompanied by a sharp febrile reaction. It may be cured promptly by the early injection of antitoxin in adequate dosage.

[J. B. H.]

THE GENERAL PRINCIPLES OF TREATMENT IN TUBERCULOUS DISEASE OF THE BONES AND JOINTS IN CHILDREN.

GAUVAIN (*British Medical Journal*, November 26, 1921) discusses the general qualifications which should be present in a health resort or an institution for the treatment of bone and joint tuberculosis in regard to location, climate, altitude, moisture, etc. Intensive heliotherapy with sea-bathing to assist is of distinct help. He then discusses the various methods of local treatment by means of fixation, operation, etc., in both the acute progressive conditions and the chronic or sub-acute stages. There are numerous interesting and instructive illustrations. This article is well worth reading.

[J. B. H.]

A COMPARATIVE ANALYSIS OF 213 FOREARM AND LEG FRACTURES.

BIZARRO, A. H. (*Annals of Surgery*, Feb., 1922).—Bizarro writes as follows:

1. Back-fire is one of the commonest causes of forearm fracture (thirty-six per cent.) and slipping and twisting the ankle the commonest mechanism of leg fracture in these series.

2. Fracture of the radius alone is the commonest in the forearm (seventy per cent.) and fractures of both tibia and fibula the commonest in the leg (forty-four per cent.).

3. The radius was fractured in eighty-four per cent. of cases of forearm single and double fractures, and the fibula was fractured in seventy-nine per cent. of cases of leg single and double fractures.

4. The lower third of the radius is the most fragile part of the bone and was fractured in ninety-one per cent. of single radial fractures, and the lower third of the fibula is the weakest point of

the bone and was fractured in eighty-eight per cent. of single fibular fractures.

5. The upper third of the ulna is the commonest seat of single ulnar fractures (sixty-six per cent.), and the lower third of the tibia the commonest place of single tibial fractures (seventy-one per cent.).

6. The lower third of the radius and ulna is the commonest seat of double forearm fractures (seventy-two per cent.), and the lower tibial third the commonest level of the leg double fractures (eighty-eight per cent.).

7. The lower third, the lower half of the upper third, and the middle third of the fibula is the order of frequency of this bone fractures when accompanied by tibial fracture.

8. The ulna is usually fractured below the radial level of fracture (forty-three per cent.), and the fibula above the tibial (sixty-four per cent.).

9. The classic fractures of Colles, Pott, and Dupuytren, as conceived by these authorities, are comparatively rare.

10. Epiphyseal strain, widening of the epiphyseal line and the epiphyseal fractures are commoner at the wrist.

11. The marginal fractures of the radius (Barton, Letenneur) are rarer than the marginal tibial fractures.

12. Longitudinal or medullary splits are commonest in the fibula.

13. Chauffeur's fracture may occur at the upper end as well as at the lower end of both radius and ulna.

14. The commonest direction of the fibular fractures is from before backwards and upwards and usually incomplete, and only seen in the lateral skiagram.

15. Fractures of the tibial tubercle appear to occur in a growing bone, and fractures of the tibial tuberosity in an adult bone.

16. Fractures of the upper half of the ulna, radius, tibia and fibula diaphysis are usually due to direct trauma.

[E. H. R.]

JOHN FERRIAR.

RUHRAH (*Annals of Medical History* III, 4) sketches entertainingly the life and personality of Dr. John Ferriar (1761-1815), physician, poet, essayist, student and critic especially of the novelist Sterne. The particular value of his "Illustrations of Sterne" lies in the light which his erudite scholarship enabled him to shed on Sterne's sources, especially in Bishop Hall's sermons and the *Anatomy of Melancholy*. Though learned, Ferriar was also wise; for in the preface to his essay "On Certain Varieties of Men" he comments on the type

"who reads

Incessantly, but to his reading brings not
A spirit and judgment equal or superior,
Uncertain and unsettled still remains,
Deep vers'd in books, but shallow in himself."

[R. M. G.]

NOVATROPIN.

HOFFMANN (*Wien. klin. Woch.*, Jan. 6, 1922) reports his experimental studies with novatropin, the nitrate of methylated hornatropin, which he finds therapeutically fully equivalent to atropin sulphate, to which it is preferable because it is thirty to fifty times less toxic. Novatropin produces a prompt peripheral action without initial irritation. By the safe employment of intravenous injection and extension of the dosage limits, the paralytic action on parasympathetic nerve endings can be immediately attained with exclusion of the initial irritation phase.

[R. M. G.]

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PURGING THE MEDICAL PROFESSION.

THE magnificent demonstration made by the legal profession of a purpose to eliminate unworthy men and correct unethical practice has encouraged those who have tried to purge the medical profession of quacks, leeches and abortionists. Unfortunately, the public is divided in opinion regarding medical practice, as shown by the endorsement of exponents of the cults and the employment of unscrupulous or untrained, advertising doctors, and therefore there is not in evidence general support of efforts which tend to drive the unethical and the criminal practitioner out of medicine. The great mass of the people is not deeply concerned in maintaining the ethics of practice, and even physicians do not, as a class, exhibit much interest in the operation of legal machinery employed for the purpose of protecting the public. Lack of interest is probably due to the common custom of leaving executive duties to appointed public servants.

So far as the laity is concerned, the reason for indifference is probably lack of understanding; for, unlike the practice of law which, to a large extent, is concerned with material possessions, protection, or other matters about which the average person has more or less definite understanding, medicine is often dealing with unseen forces and hidden dangers involving

uncertain issues, so that the patient or his friends may not exercise calm judgment under stress of anxiety or perchance disappointment over the end-result. The average client of the lawyer can better appreciate the labors of a competent attorney than the patient can those of the scientific physician. History has demonstrated on many occasions that even people of more than average intelligence may be led to be suspicious of the purposes of physicians working for the public weal and interpret the most altruistic actions as the promptings of greed. Even in cases where criminal practice is suspected, the alleged wrongdoer is the object of much sympathy and the corrective agents are antagonized.

Taking the abortionist as an example, while society condemns his practice as an academic proposition, the individual suspect is often regarded as an unfortunate object of persecution. Physicians, clergymen and other influential citizens will often argue for clemency soon after the right to practice medicine has been taken from the transgressor.

Although the prevention of disease is regarded as the most valuable function of medical practice, the prevention of crime does not always receive the endorsement which the importance of the subject warrants. Recent cases illustrate these contentions. For example, the Board of Registration has been engaged in efforts to lead a suspected abortionist to refrain from questionable behavior. Many circumstances focused attention on this man and his associates, and the statement made by a woman in the City Hospital seemed to confirm the suspicions. Although this woman directly charged this man with the responsibility of her condition following an abortion performed by him, and confirmatory evidence was presented, when brought before the authorities she reversed her testimony and the suspected doctor could not be convicted. Soon after this occurrence, the Department of Public Safety became suspicious of the same man who had been charged by this woman of having committed the crime, and presented to the Board the testimony of an investigator who had secured evidence tending to show that he, the doctor, had agreed to perform an abortion for a fee. Although no abortion was performed, the agreement to commit a crime was construed as gross unprofessional conduct, and the suspect was served with a notice to appear before the Board of Registration and show cause why his registration should not be suspended or annulled.

This was nearly two years ago, and the attorneys for the accused immediately appealed to the Supreme Court, seeking to restrain the Board. Justice Jenny has decided that the contention was unsound and on appeal to the full bench a decision was written by Chief Jus-

tice Rugg which was gratifying both because the court upheld the purpose to protect the public and also because the contention of the defendant was unsound. A date was then set for the hearing on the original charge, and counsel for the defendant again applied for a stay of proceedings on the ground that the Board was not competent to conduct the hearing because of prejudice. Justice Carroll declined to issue any order of restraint, giving his opinion that no evidence had been introduced tending to show prejudice or unfitness on the part of the Board, and the hearing was held the following day. The evidence was clear, as testified to by the investigator, but the defense put on the stand a young woman who claimed to have been in the hall outside the consultation room and to have heard the doctor refuse to perform the operation. This resource of the defense might have been more ingenious if it had been shown that there was a dictaphone or some other apparatus which conveyed to one outside, the conversation in the closed room. The doctor claimed that sound could have been transmitted under the door because of a defective threshold. This listener was not seen by the investigator although she passed through the hall where the witness claimed to have been sitting.

The question before the Board was simply on the quality of the testimony. It is certainly extraordinary that a person sitting in a hall could hear and remember conversation in a closed room clearly and correctly, according to the testimony.

After careful deliberation the Board has suspended the license of this man for one year. This decision is evidence of courage in the face of most persistent legal objections. As a side-light, mention may be made of an attack on the Board before a legislative committee by one of the counsel for the accused. This lawyer has repeatedly attacked the Board and in the last instance introduced testimony by a former employee who was discharged for incompetence. A Board, however, can do very little to elevate the profession without active support, and one may question how far physicians can be induced to become interested in the disagreeable details of control of criminal practice. The Committee on Ethics and Discipline of the Massachusetts Medical Society is only concerned in dealing with members of the Society and fortunately has little to do.

It is extremely unpleasant for a respectable practitioner to be concerned with criminal investigation, but if every suspicious circumstance could be reduced to writing and forwarded to the proper authorities, the accumulated testimony might lead to effective action.

There is a common impression that criminal abortions are conducted to a great extent in

Boston. Conviction of these practitioners in our courts is difficult unless a dying declaration has been secured, and even then juries do not always convict. The real remedy lies, to some extent, in the hands of the profession, for many of the women who desire relief from pregnancy consult a physician first and some come under a physician's care afterward.

We may comfort ourselves with the belief that we are not so bad as some other nations, for in 1909 the Obstetrical Society of France affirmed that of children conceived in the great cities of that country, one-third were destroyed by abortion. This criminal procedure and other forms of race suicide may be a real menace to this country for, in the editorial of the *Southern Medical Journal* of April, 1920, the statement is made that the birth rate in New England today is actually lower than it is in France. History shows that every nation which records a progressive lowered birth rate is doomed.

Both on moral as well as material grounds, the conditions call for professional attention.

A CHALLENGE TO CHRISTIAN SCIENCE.

DR. WILSON G. BAILEY of Camden, N. J., has issued a challenge to Mr. Samuel J. MacDonald of the Christian Science Publication Committee through the following announcement published in the *Journal of the Medical Society of New Jersey*:

"I will give Mr. MacDonald, or any institution he may name, \$2,500 if he will cure, by Christian Science alone, an organic case first diagnosed as such by experts."

One may reasonably fear that Dr. Bailey is treading on dangerous ground. Suppose, for example, that a person suffering with incipient tuberculosis applies to a Christian Science healer for treatment and subsequently recovers, as many people have fortunately done without Christian Science or any other treatment, how would a jury of laymen be convinced? If a contest should be started, some uneducated persons might be more ready to endorse the Christian Science claim. A public contest with a quack does not redound to the credit of the medical profession. The logical course consists in education and then more education. The intelligence of the masses is gradually being developed and the fads of the cults will go the way of the ignorant pretenders of the past. Every age will find large groups of persons who will endorse any grotesque claim. Scientific men are out of place in conflicts with uneducated and prejudiced opponents. This has been shown on several occasions when eminent representatives of our profession have been

heckled in public when appearing before legislative committees. Even in courts, well educated physicians can sometimes be made to appear weak under the attack of vigorous and unscrupulous cross-examination. It is regrettable that there is no forum where the fads and follies of the day may be dispassionately discussed. Until there is, our greatest weapon lies in the achievements of medicine, and every member of the profession should feel definitely responsible for the quality of the work done. The results following inefficient care of patients furnishes the Christian Scientist and the chiropractor with a weapon of attack on medicine.

NEWS ITEMS.

MIDDLESEX SOUTH DISTRICT MEDICAL SOCIETY.—The annual meeting of the Society was held at the American House, Boston, on Wednesday, April 19th, 1922, at 11 A.M. The annual oration was delivered at 12 o'clock, noon, by Dr. Thomas M. Durell of Somerville. Subject: "Some Common Matters of Medico-Legal Interest."

The annual dinner was served at 1 P.M.

About 100 members were present, and the list of officers presented by the nominating committee was elected as follows:

For President: Enos H. Bigelow, Framingham. For Vice-President: Eugene A. Darling, Cambridge. For Secretary: Frederic B. M. Cady, Cambridge. For Treasurer: Edward Mellus, Newton. For Commissioner of Trials: Arthur W. Griffin, Malden. For Member of the Nominating Committee of the Massachusetts Medical Society: Edmund H. Stevens, Cambridge. For Alternate: Walter E. Fernald, Waverley. For Censors: Charles B. Fuller, Waltham; Irving J. Fisher, West Newton; James Glass, Framingham; John P. Nelligan, Cambridge; Herbert E. Buffum, Somerville. For Orator: Francis G. Curtis, Newton. For Councillors: District No. 1 (Cambridge)—Edmund H. Stevens, Frederick J. Goodridge, Fred R. Jouett, Lyman S. Hapgood, W. S. Whittemore, J. W. Sever, W. A. Putnam; District No. 2 (Charlestown, Everett, Malden)—John Duff, Clarence H. Staples, Henry J. Keaney, E. W. Baron; District No. 3 (Medford, Somerville)—Charles E. Mongan, G. W. W. Whiting, Warren D. Ruston, Frederick G. Smith; District No. 4 (Arlington, Belmont, Concord, Lexington, Waltham, Watertown)—Walter E. Fernald, Charles O. Chase, Charles B. Fuller, Harold R. Webb; District No. 5 (Brighton, Newton)—George L. West, Edward A. Andrews, Francis G. Curtis, Henry R. Rowen, S. F. McKean, Lewis H. Jack; District No. 6 (Ashland, Framingham, Holliston, Hopkinton, Natick, Sherborn)—Charles E. Hills, John E. Dodd; District No. 7 (Hudson, Lincoln, Marlborough,

Maynard, Stow, Sudbury, Wayland, Weston)—Fresenius Van Nuys. For Auditors: Charles F. Maguire, Somerville; Arthur N. Makechnie, Cambridge; A. C. Cummings, Newton.

A committee consisting of Drs. Durell, Dow and West was appointed to consider legislation which might be enacted for the purpose of safeguarding life, imperilled by water gas.

SARAH H. BARBER, who was assistant lecturer on Speech Correction and Development in the Northwestern University last summer, has been appointed instructor in Speech Correction in the University of Utah, Salt Lake City, Utah.

THE National Society for the Study and Correction of Speech Disorder will hold its annual meeting as an allied association with the National Education Association, that meets in Boston from July 3rd to July 7th, 1922. The Society will meet every afternoon during the N. E. A. session. Each afternoon will be taken up with formal papers by officers and Massachusetts speech teachers. Then there will be ten five-minute papers open to general discussion. There will be a demonstration with maps and charts, showing the progress of the American Movement for Speech Correction from coast to coast.

At the monthly meeting of the Medical Staff of the Boston Dispensary, held Thursday, April 13th, Dr. John D. Adams, head of the Orthopedic Department, gave a stereopticon lecture on the meaning and value of occupational therapy.

Dr. Adams said, in part, that through the introduction of occupational therapy into hospitals overseas during the war, the capacity of these hospitals was increased 50 per cent. because, by it, the period of convalescence was materially reduced. He outlined the program of the School for Occupational Therapy in Boston, an activity of the Massachusetts Association for Occupational Therapy, for the training of occupational aides, of which thirty have been graduated in the past two years, in the adaptation of arts and crafts to the convalescent. The School owns the building at 7 Harcourt Street; in addition maintains a Bureau at Berkeley and Boylston Streets, which is a clearing house for the products made at the various hospitals.

An effort is being made to secure 3,000 new members of the Society, which aims to make occupational therapy a part of the treatment in civilian hospitals throughout the State.

The establishment of out-patient industrial workshops in connection with the after-treatment of discharged hospital cases is also a part of the plan to extend the benefits of this kind of work.

WORCESTER DISTRICT MEDICAL SOCIETY.—The regular meeting of the Worcester District Medical Society was held April 12, at 8.15 P.M., at the Worcester State Hospital on Belmont Street. The Hospital was open for inspection from 7 to 8 P.M., and many of the fellows availed themselves of the opportunity to visit this large institution.

Dr. Eugene R. Kelley, State Commissioner of Health, was the first speaker, and took as his subject, "State Medicine vs. Preventive Medicine." He said that health officers were in a peculiar position and had often to apologize for the profession and at the same time to the profession. He defined state medicine as a procedure where the government entered the practice of medicine. He discussed state medicine as understood in England and said that it was too early to tell how it was working out. Probably the average income of the profession was increased, but that some claimed that it had been a failure as far as preventive medicine was concerned and that it had certainly increased malingering. He quoted Mackenzie as saying that more effort should be made to study disease tendencies rather than the disease and its pathology already developed. That more attention should be given to the out-patient departments, where disease in its incipency was seen. He quoted Dr. Emerson, formerly Commissioner of Health for New York, as the most conspicuous proponent of state medicine as conducted in England. He was sure that the country was about to awaken to the importance of preventive medicine. Every boy and girl has a right to be well-born and free from disease.

Dr. John W. Bartol, President of the State Society, in discussing the address of the Commissioner, said that the Board of Health as now organized was admirably conducted and that probably the State Legislature would, from time to time, ask the Board to take on new duties. He realized that the legislators did not always take the Commissioner's advice, but that the Commissioner was a servant of the people and would do as he was told. Community centers for diagnosis was a tendency towards state medicine.

Dr. Walter Fernald, of Waverley, was the next speaker on the program, and discussed "Mental Health in Children." He said that the Commissioner in his address had made a good background for his talk, as the Legislature in 1919 had made a beginning in state medicine when it delegated to the School of Feeble Minded and the State Hospitals to examine all the children in our public schools who were three years or more retarded. During the last year, more than 5000 children had been examined under this act already and that he felt that great good would come from this work ex-

tending over a series of years. Mental diseases were not seen until they were established and that the inhabitants of our insane hospitals twenty years hence were now in our public schools, and that this legislation had made it possible to reach these cases in the formative period. He said that the science of measurement of intelligence had reached a definite point where, by examination of the child, it can predict the mental level of that person when it reaches adult life. At the age of 14, the child's mental development reaches its height. Very few mistakes are made in foretelling the mental age. You can teach a child only certain definite facts. A mental defect is not an evidence of inferiority. Mentally inferior people are often acceptable socially. Through the school clinics, the defectives are found early, helped physically, the institutional cases separated, and the rest helped to support themselves.

Dr. A. C. Hurd of Millbury, in discussing the paper, asked if it were possible for the family physician to obtain the results of the examinations of these children, and was informed by Dr. Fernald that he thought that the school and family physicians, when interested, should have this information.

Dr. W. P. Bowers, editor of the JOURNAL, also discussed the paper and said that, in his opinion, there was no danger from state medicine in this State, because the citizens opposed it. He believed that occasionally special branches may be developed, but no state medicine such as developed in England.

Dr. Bowers introduced his friend, Dr. C. E. Abbott of Andover, Mass., who is at present a member of the State Legislature. Dr. Abbott urged the members to discuss medical matters with the Legislators when such questions were before them.

President Goodwin announced that the annual meeting would be held in Clinton next month on invitation from the Clinton members of the Society. After the meeting, the fellows were entertained at lunch by the Staff of the hospital.

ESSEX NORTH DISTRICT MEDICAL SOCIETY.—The annual meeting will be held in Russell Hall, Y. M. C. A. Building, 40 Lawrence Street, Lawrence (Tel. 1260), Wednesday, May 3, 1922. Dinner will be served at 12.30 o'clock, sharp. After the dinner the business meeting will occur at 1.45. Following the business meeting these papers will be presented:

J. P. Bill, M.D., D.P.H., of Boston, upon "Individual Preventive Medicine—Its Nature and Possibilities" (40 minutes); G. G. Smith, M.D., of Boston, Assistant in Department of Genito-Urinary Diseases, Massachusetts General Hospital, and Assistant Editor of

the BOSTON MEDICAL AND SURGICAL JOURNAL, upon "The Management of Cancer of the Bladder" (40 minutes); Mr. G. H. Crosbie, of Boston, Agent for the United States Fidelity and Guaranty Co., insuring members of the Massachusetts Medical Society under a group Indemnity Policy approved by the Council November 9, 1921. He will explain in detail the workings of the policy (10 minutes). After all the papers have been read they will be open for discussion and each speaker is limited to five minutes. Meeting of the Censors will be held at Hotel Bartlett, 59 Main Street, Haverhill (Tel. 8710), on Thursday, May 4, at 2 P.M., sharp. Candidates should present their diplomas to the Secretary one week in advance.

J. FORREST BURNHAM, M.D., *Secretary*.

CARTER MEMORIAL HOSPITAL.—Under the direction of J. D. Leland & Company, architects and engineers, the Carter Memorial Hospital of Lancaster and Clinton is to be extended and altered for obstetric service. This hospital was originally presented to the Clinton Hospital Association by Miss Nellie Carter, in memory of her father and mother, formerly of Lancaster, in accordance with the expressed wish of her sister, of Boston. It was originally planned that this building would be a link in the chain provided by local hospitals for the purpose of coöperating with the State and county in meeting the tuberculosis problem.

The need for more extensive facilities for the care of obstetric cases and the desire on the part of Miss Carter to make the hospital accomplish the greatest possible good has led to the converting of the present building into a well-equipped lying-in hospital. There will be accommodations for over twenty patients with convenient delivery and operating rooms. This building is detached from the main Clinton hospital except by tunnel, so that the objections incident to close association with general hospital patients will be well met.

ON April 18, 1922, Dr. Francis M. Rackemann delivered an address before the New York Academy of Medicine on the Treatment of Asthma, and on April 19, 1922, Dr. J. Dellinger Barney of Boston read a paper entitled The Question of Recurrent Renal Calculi before the same society.

WORCESTER NORTH DISTRICT MEDICAL SOCIETY.—The Sixty-Fourth Annual Meeting was held at the Fay Club, Fitchburg, Tuesday, April 25, 1922, at 12 o'clock noon. The annual oration was delivered by Dr. H. R. Nye of Leominster. Annual election of officers and annual banquet followed.

Miscellany.

STAFF CLINICAL MEETING, MASSACHUSETTS GENERAL HOSPITAL, MARCH 12, 1922.

THE first paper of the evening was given by Dr. Chester M. Jones, on the subject of bile pigment studies in the duodenal contents.

After outlining briefly the various causes for increased bile pigment elimination in the duodenal contents, Dr. Jones presented several cases in which the bile pigment metabolism was typically altered.

The first case was one of infectious neuritis, in which the focus of infection was not definitely determined. Examination of the duodenal contents showed a tremendous alteration in pigment elimination, both in total amount, and in the ratio between the individual pigment elements. The presence of increased amounts of urobilinogen, and the high level of all the pigments was definite evidence of pathology in the biliary tract, with involvement of the liver, and probably the gall-bladder.

The second case was that of a patient with acute symptoms referable to the upper abdomen, in whom an absolute diagnosis was not possible. Differential diagnosis lay between acute cholecystitis, subacute perforation of the stomach and pancreatitis. Examination of the duodenal contents, with especial reference to the bile pigments, indicated very marked involvement of the biliary tract, and especially the liver. The sediment gave evidence of an acute inflammatory process of the biliary tract and, with the physical findings, indicated acute cholecystitis. Operation confirmed the diagnosis.

A third case was presented of the duodenal findings in a case in which the gall-bladder had been removed for typical gallstone attacks. Following the operation the patient had several very mild attacks of right upper quadrant pain with chills. Duodenal analysis revealed in a careful sediment examination the presence of gravel, bile-stained pus and mucus. Study of the bile pigments showed a very low level of pigment elimination, and a marked alteration in the ratio between the individual pigment elements. The two findings provided conclusive proof of further calculus formation in the common duct of higher biliary radicles, with partial obstruction. Definite liver damage was indicated by an increase in the amount of urobilinogen.

In addition to a detailed discussion of the above cases, Dr. Jones outlined briefly some preliminary work on the study of various types of infectious jaundice.

The second paper was on the "Results of

Quinidine Therapy," by Dr. L. E. Viko. Dr. Viko spoke as follows:

A statistical study of the first sixty cases of auricular fibrillation, to whom we have given quinidine, shows that, of the 40 cases (66 per cent.) restored to normal rhythm by the drug, 21 cases (about one-half) relapsed after varying periods, while 19 cases remain in normal rhythm at the present date, after periods up to 9½ months.

As factors in restoration and maintenance of normal rhythm, age, sex, etiological type of heart disease, valve lesions, and duration of heart disease, appeared unimportant. On the other hand, the percentage of restoration and maintenance varied inversely with the (1) duration of fibrillation, and (2) the degree of recent failure.

Large or long continued dosage did not give proportionate results. Proper rationing of restored cases, yet to be worked out satisfactorily, promises considerable decrease in the number of relapses.

One patient died suddenly a few hours after the restoration of normal rhythm, probably from cerebral embolism; in two cases, fixed flutter was produced with harm to the patient.

The benefit from restoration, difficult to estimate because of the continuation of the effect of digitalis previously given, seemed marked in seven cases, moderate in ten, and transient or absent in the remaining cases.

Probably with a better knowledge of the drug, quinidine will prove a valuable agent, perhaps more prophylactic than directly therapeutic, and then only in a small group of cases with recent fibrillation and no failure.

Dr. Levine commented upon the doubtful clinical benefit derived from restoration of normal rhythm, especially in view of the dangers.

Dr. P. D. White commented upon the probable benefit from the drug in cases of paroxysmal fibrillation and flutter. He also commented upon a personal communication from Dr. Marvin at New Haven.

The third paper was by Dr. E. C. Romberg and was entitled, "Studies of the Causes of Death in Early History." An abstract of Dr. Romberg's remarks is as follows:

Dr. Margaret Warwick showed that out of 136 autopsies of infants completely studied, 44 per cent. showed cerebral hemorrhage, and 20½ per cent. hemorrhagic diseases of the new-born. Cerebral hemorrhage of the new-born frequently presents no distinctive symptoms or syndrome. In many cases the histories showed that the babies were perfectly normal at the time of birth, the symptoms, when they were present, not appearing for many hours or days. Even in a short, normal labor, there is great congestion, perhaps caused by the extreme venous stasis of asphyxiation, distortion, and perhaps injury of the poorly

supported venous radicles of the cerebral cortex of the infant. While there was prolonged labor, bulging fontanelle, general spasticity, and where cerebral edema was assumed, calomel 1 gr. was given, soon resulting in the disappearance of these symptoms.

There are children who apparently have had a normal delivery, who at birth breathed well, appeared normal physically, who had no physical signs of intracranial hemorrhage, but whose breathing became very irregular, feeble, color cyanotic, all progressively worse in 24 hours, ending finally in the patient's death. No definite diagnosis could be made.

A plaster mould of the infant's cranium was made immediately following its delivery, in order to have a permanent record of the location of those points where unusual pressure was exerted, to record if any resisting part was encountered, to note abnormal excessive moulding; and then another mould was taken in 24 hours to obtain a permanent impression of the child's ability to mould its head towards normal.

Moulds of these children previously mentioned, upon whom no definite diagnosis could be made, showed no points of abnormal pressure. The labor was uneventful. Autopsies were done on seven. In four they were massive, firm, subtentorial blood clots entirely surrounding the medulla. The rest of the findings were negative. In two, there were thin, hemorrhagic areas over the superior cortex, with slight punctate hemorrhages throughout the cerebral tissue. In one, there were subpleural petechiae with an associated atelectasis. No coagulation or bleeding times were done.

In the normal new-born, there is found a tendency to prolongation of coagulation and bleeding time in the first few days of life. Hemorrhage is accompanied, in many cases at least, with an exaggeration of this tendency. Past data on coagulation time are very unsatisfactory because of the different methods employed. Foote and Rodda have recently demonstrated that hemorrhagic disease of the new-born may be a prominent factor in the causation of intracranial hemorrhage.

From these findings one can justly assume that intracranial hemorrhage is a common condition in new-born infants, and may be a local manifestation of a general condition of hemorrhagic disease of the new-born. Blood coagulation tests should be performed on the new-born as a routine for the purpose of collecting well-controlled, standardized data, and then for the selection of certain hemorrhagic conditions before the onset of marked symptoms, indicating the administration of blood to combat the condition.

The last paper was a report of metabolism studies in a case of acute leukemia, by Dr. William G. Lennox.

The patient was a girl of 18, whose symptoms began abruptly three weeks before admission to the hospital. After admission, she lived two months. A chart of her condition during the last 49 days of life showed the effect of x-ray treatment on the basal metabolic rate, the nitrogen balance, white count, pulse, temperature and weight.

Nitrogen equilibrium was maintained on a daily intake of 10 grammes of nitrogen. It was found that x-ray of the smaller superficial lymph-nodes had no effect on the factors named, but that exposure of large masses of glands and of the spleen caused marked outpouring of urinary nitrogen, and diminished leucocyte count, the latter falling from 33,000 to 4,500 c.m.m. This condition would last for two or three days only, after which there would be a period of equally marked nitrogen retention, with coincidently rising leucocyte count. The basal metabolic rate and the temperature did not show these rapid fluctuations and were better guides to prognosis than was the leucocyte count. Just before death, the latter was normal, but there was a large negative nitrogen balance, and the basal metabolism maintained its high rate of plus 50 per cent.

LEGISLATIVE MATTERS.

SENATE bills 270 and 271, two industrial accident measures, which have been favored by the commission in an unofficial way, have received adverse reports by the Joint Judiciary Committee and these reports have been accepted by the House.

Recommendations of Governor Cox Relating to a Public Health Hospital:

To the Honorable Senate and House of Representatives:

The United States has acquired by purchase certain land in Rutland, Worcester County, for the site of a Public Health Service Hospital. The land is described in a photostatic copy of the deed to the United States and blue print of a survey made in July, 1921, which have been filed in the office of the Secretary of the Commonwealth. The hospital at Rutland is to be used for the care and treatment of discharged sick and disabled soldiers who served in the World War. The United States Government has requested that Massachusetts cede jurisdiction of the land in question in order that it may not be restricted in its endeavor to provide promptly the facilities authorized by Congress for the care of disabled veterans. Therefore I recommend legislation to the end that Massachusetts shall cede jurisdiction of the land in Rutland which the United States has purchased.

CHANNING H. COX.

The following Resolve has been presented by the Committee on Ways and Means Providing for a Special Commission to investigate and report upon the Need for Financial or Other Aid to Physically Handicapped Citizens.

Resolved, That a special commission is hereby established to consist of the commissioner of public welfare, the chairman of the industrial accident board and the director of the commission for the blind to investigate and report to the general court, not later than the second Wednesday in January next, such recommendations for legislation upon the subject matter contained in house documents three hundred and sixty-nine and three hundred and seventy, as may be advisable.

The commission shall consider and report in particular a definition for "physically handicapped citizens" to include only such citizens as have been seriously maimed or are otherwise crippled to such an extent as to be definitely handicapped in obtaining employment, and as to the number of citizens of the Commonwealth coming within such definition, and their need for financial aid.

THE SALE AND POSSESSION OF DANGEROUS WEAPONS.

The Committee on Public Safety have reported a bill (House 1558) defining the term "firearms" in Section 1, and Section 2 provides for licensing of persons to sell, rent, or lease firearms. It is provided in Section 4 that every licensee shall keep a record of every sale of a firearm. In Section 8, Amendment to Section 30 of Chapter 140 provides as follows:—*Section 130*. Whoever sells or furnishes to a minor under the age of fifteen or to an unnaturalized foreign-born person who has not a permit to carry firearms under section one hundred and thirty-one, any firearm, air gun or other dangerous weapon or ammunition therefor shall be punished by a fine of not less than ten nor more than fifty dollars, but instructors and teachers may furnish military weapons to pupils for instruction and drill.

Section 9 provides for the issuing of permits to carry firearms as follows:—*Section 131*. The justice of a court or a trial justice, the board of police of a city or the commissioner of public safety or persons authorized by them may, upon the application of any person, issue a license to such person to carry a pistol or revolver in the Commonwealth if it appears that the applicant has good reason to fear an injury to his person or property or for any other proper purpose, and that he is a suitable person to be so licensed.

Further restrictions are found in amendments under Section 10, as follows:—*Section 12*. Whoever manufacturers or causes to be

manufactured, or sells or exposes for sale, an instrument or weapon of the kind usually known as sling shot, sword cane, pistol cane, bludgeon, blackjack, or metallic knuckles, shall be punished by a fine of not less than fifty nor more than two hundred dollars or by imprisonment for not more than six months.

The Committee on Public Health has reported Senate bill 240, which provides that: No person, not being a physician, dentist, or veterinarian registered under the laws of this Commonwealth or of the state where he resides, wholesale druggist, manufacturing pharmacist, registered pharmacist, manufacturer of surgical instruments, official of any government having possession of the articles hereinafter mentioned by reason of his official duties, nurse acting under the direction of a physician, employee of an incorporated hospital acting under the direction of its superintendent or officer in immediate charge, or a carrier or messenger engaged in the transportation of such articles, shall have in his possession a hypodermic syringe, hypodermic needle, or any instrument adapted for the use of narcotic drugs by subcutaneous injection. No such syringe, needle or instrument shall be delivered, sold or exchanged except to a registered pharmacist, physician, dentist, veterinarian, wholesale druggist, manufacturing pharmacist, a nurse upon the written order of a physician, or an employee of an incorporated hospital upon the written order of its superintendent or officer in immediate charge.

The remainder of the bill is important and is printed in full:

Section 4. Section sixty-two of chapter one hundred and twenty-three of the General Laws is hereby amended by striking out, in the second and third lines, the words:—"The Norfolk state hospital", and inserting in place thereof the words:—any state hospital, infirmary or institution under the department, or under the department of public welfare or the department of public health,—so as to read as follows:—*Section 62.* Any of the judges named in section fifty, or a judge of the municipal court of the city of Boston, may commit to any state hospital, infirmary or institution under the department, or under the department of public welfare or the department of public health, to the McLean hospital or to a private licensed institution, by an order of commitment, directed to the trustees, superintendent, or manager thereof, as the case may be, made in accordance with section fifty-one, and accompanied by a certificate, in accordance with section fifty-three, by two physicians qualified as therein provided, any male or female person, who is subject to dipsomania or inebriety either in public or private, or who is so addicted to the intemperate use of narcotics or stimulants as to have lost the power of self-

control. The judge receiving the application for such commitment shall examine on oath the applicant and all other witnesses, and shall reduce the application to writing and cause it to be subscribed and sworn to by the applicant. He shall cause a summons and copy of the application to be served upon such person in the manner provided by section twenty-five of chapter two hundred and seventy-six. Such person shall be entitled to a hearing unless after receiving said summons he shall in writing waive a hearing, in which case the judge may issue an order for his immediate commitment as aforesaid, without a hearing, if he is of opinion that the person is a proper subject for custody and treatment in the institution to which he is committed. The commitment may be made forthwith, if the examining physicians certify the case to be one of emergency. A person committed as aforesaid may be detained for two years after the date of his commitment, and no longer.

Section 5. Section eighty of said chapter one hundred and twenty-three is hereby amended by inserting after the word "institution", in the first line, the words:—specified in section sixty-two,—so as to read as follows:—

Section 80. The superintendent or manager of any institution specified in section sixty-two for the care and treatment of persons addicted to the intemperate use of narcotics or stimulants may, when requested by a physician, by a member of the board of health or a police officer of a town, by an agent of the institution's registration department of Boston, by a member of the state police, or by a wife, husband, guardian or, in the case of an unmarried person having no guardian, by the next of kin, receive and care for in such institution, as a patient for a period not exceeding fifteen days, any person needing immediate care and treatment because he has become so addicted to the intemperate use of narcotics or stimulants that he has lost the power of self-control. Such request for the admission of a patient shall be made in writing and filed at the institution at the time of his reception, or within twenty-four hours thereafter, together with a statement, in a form prescribed by the department, giving such information as it deems appropriate. The trustees, superintendent or manager of such institutions shall cause to be kept a record, in such form as the department requires of each case treated therein, which shall at all times be open to inspection of the department and its agents. Such records shall not be a public record, nor shall the same be received as evidence in any legal proceeding. The superintendent or manager of such an institution shall not detain any person received as above for more than fifteen days, unless, before the expiration of that period, such person has been

committed under section sixty-two, or has signed a request to remain at said institution under section eighty-six.

Section 6. Chapter one hundred and twenty-three, as amended in section one hundred and thirteen by section one of chapter two hundred and seventy of the acts of nineteen hundred and twenty-one, is hereby further amended by striking out said section one hundred and thirteen and inserting in place thereof the following:

Section 113. At any time prior to the final disposition of a case in which the court might commit an offender to the state prison, the reformatory for women, any jail or house of correction, the Massachusetts reformatory, the state farm, the industrial school for boys, the industrial school for girls, the Lyman school, any county training school, or to the custody of the department of public welfare, for any offence not punishable by death or imprisonment for life, a district attorney, probation officer or officer of the departments of correction, public welfare or mental diseases may file in court an application for the commitment of the defendant in such a case to a department for defective delinquents established under sections one hundred and seventeen and one hundred and twenty-four, or to a department for the cure of drug addicts, established by the Governor and council under authority of said sections. On the filing of such application the court may continue the original case from time to time to await disposition thereof. If, on a hearing thereon, it appears that the defendant, within a period of three years, has been found guilty of an offence for which he might have been committed to any institution above named or to the custody of the department of public welfare, or that he has been adjudged a juvenile delinquent, and that he is mentally defective, or addicted to the intemperate use of stimulants or narcotics, and is not a proper subject for the schools for the feeble-minded or for commitment as an insane person, the court may commit him to such department for defective delinquents, or to such department for the cure of drug addicts, as the case may be, according to his age and sex, as hereinafter provided.

Section 7. Chapter one hundred and twenty-three is hereby amended by striking out section one hundred and fourteen and inserting in place thereof the following:—*Section 114.* If an offender while under commitment to any of the institutions named in the preceding section or to the department of public welfare persistently violates the regulations of the institution or department in whose custody he is, or conducts himself so indecently or immorally, or otherwise so grossly misbehaves as to render himself an unfit subject for retention in said

institution or by said department, and it appears that such offender is mentally defective or addicted to the intemperate use of stimulants or narcotics, and is not a proper subject for a school for the feeble-minded, a physician in attendance at any institution named in the preceding section or a physician employed by said department shall make a report thereof to the officer in charge of said institution or to the director of child guardianship who shall transmit the same to one of the judges mentioned in section fifty. The judge shall make enquiry into the facts and, if satisfied that the offender is mentally defective or so addicted and not a proper subject for a school for the feeble-minded, shall order his removal to a department for defective delinquents, or to a department for the cure of drug addicts, as the case may be, according to his age and sex as hereinafter provided.

Section 8. Chapter one hundred and twenty-three is hereby further amended by striking out section one hundred and fifteen and inserting in place thereof the following:—*Section 115.* No person shall be committed to a department for defective delinquents or to a department for the cure of drug addicts under either of the two preceding sections unless there has been filed with the judge a certificate that he is mentally defective or is addicted to the intemperate use of stimulants or narcotics by two physicians qualified as provided in section fifty-three. The fees of the certifying physicians shall be of the amount and paid in the manner provided for like service in sections three to one hundred and twelve, inclusive.

Section 9. Section one hundred and seventeen of said chapter one hundred and twenty-three is hereby amended by inserting after the word "inclusive", in line six, the words:—At any state institution under the supervision of the department of correction, the department of public welfare or the department of mental diseases, there may be established and maintained, with the approval of the Governor and council, a department or departments, to be termed department for drug addicts, for the correction and care of persons addicted to the intemperate use of stimulants or narcotics and committed thereto under sections one hundred and thirteen to one hundred and sixteen, inclusive,—so as to read as follows:—*Section 117.* At the reformatory for women, the Massachusetts reformatory, the state farm or such other place or places as may be approved by the Governor and council, there may be maintained departments to be termed departments for defective delinquents, for the custody of persons committed thereto under sections one hundred and thirteen to one hundred and sixteen, inclusive. At any state institution under the supervision of the department of correction, the de-

partment of public welfare or the department of mental diseases, there may be established and maintained, with the approval of the Governor and council, a department or departments, to be termed department for drug addicts, for the correction and care of persons addicted to the intemperate use of stimulants or narcotics and committed thereto under sections one hundred and thirteen to one hundred and sixteen, inclusive. All men and boys so committed shall be committed to the department for male defective delinquents. All women and girls so committed shall be committed to the department for female defective delinquents. All such persons committed to the department for defective delinquents at any institution under control of the department of correction shall be and remain in the custody of the said department until discharged as hereinafter provided.

Section 10. Section one hundred and eighteen of said chapter one hundred and twenty-three is hereby amended by inserting after the word "delinquents", in line two, the words:— or drug addicts,—so as to read as follows:—

Section 118. The board of parole of the department of correction may parole inmates of the departments for defective delinquents or drug addicts on such conditions as it deems best, and may at any time during the parole period recall to the institution any inmate paroled.

Section 11. Section one hundred and nineteen of said chapter one hundred and twenty-three is hereby amended by inserting after the word "delinquent", in line two, the words:— or department for drug addicts, so as to read as follows:—*Section 119.* Any person may apply at any time to the justice of the district court in whose jurisdiction a department for defective delinquents or a department for drug addicts is located, for the discharge of any inmate of said department. A hearing shall thereupon be held, of which notice shall be given to the applicant and to the person in charge of the institution where the inmate is confined. If after the hearing the justice shall find that it is probable that the inmate can be allowed to be at large without serious injury to himself, or damage or injury or annoyance to others, he may order the person having custody of said inmate to parole him. Further action on the application for the inmate's discharge shall be suspended for one year from the date of his parole. If, at any time prior to the expiration of said year, the justice of the court where the application was filed shall be satisfied that the best interests of said inmate, or of the public, require the recall of the inmate from parole, he may authorize the person having custody of the inmate to so recall him. If an application is denied, a new appli-

cation shall not be made within one year after the date of the order denying the previous application. If at the end of said year the justice shall find that said inmate can be allowed to be permanently at large without serious injury to himself, or damage or injury or annoyance to others, he may order the person having custody of said inmate to discharge him. If a person discharged under this section is found by any court to have committed, after his discharge, any offence against the laws of the Commonwealth, said court may commit such person to a department for defective delinquents without the certificate of any physician.

Section 12. Section one hundred and twenty-four of said chapter one hundred and twenty-three is hereby amended by inserting after the word "correction", in line four, the words:— the commissioner of mental diseases, or the commissioner of public welfare, as the case may be,—so as to read as follows:—*Section*

124. Sections one hundred and thirteen to one hundred and twenty-four, inclusive, shall take effect as to any of the departments named in section one hundred and seventeen when the same is ready for occupancy. The commissioner of correction, the commissioner of mental diseases, or the commissioner of public welfare, as the case may be, shall notify the Governor when a department is in a suitable condition to receive inmates; and the Governor may then issue his proclamation establishing such department as a place for the custody of defective delinquents.



SUMMER COURSES IN PUBLIC HEALTH AND HEALTH EDUCATION

The Massachusetts Institute of Technology offers summer instruction during the months of June, July, August and September, in Chemistry, Biology and Public Health, Physics, General Studies, Entrance Subjects, etc. Through its Department of Biology and Public Health, the Institute is this year expanding still further its summer instruction in Public Health and Health Education.

The recent and rapid development in methods of health work in the public schools has created a demand for new courses specially arranged for teachers, school nurses who have teaching responsibilities, and teachers of physical education who have classes in hygiene and public health. Courses 1, 2, 3 and 4, listed below, are particularly designed for this group of workers.

For those desiring to become laboratory technicians, and as preparation for more advanced studies in the public health field, technical training in bacteriology and public health laboratory methods is offered in Courses 5 and 6, listed below.

Credit for these courses will be given by Massachusetts Institute of Technology. A certificate from the Division of University Extension of the Massachusetts Department of Education is obtainable for each course satisfactorily completed. The Boston School Department will allow credit for professional advancement to Boston teachers taking this course.

Each person will be required to register in advance at the Registrar's Office for every course he or she

desires to attend. A registration fee of \$2 will be imposed for registration later than 4 o'clock on the day preceding the day of the beginning of the course. The fee for each course must be paid to the Bursar before the time fixed for beginning the course.

1. METHODS OF TEACHING HYGIENE AND PUBLIC HEALTH IN THE PUBLIC SCHOOLS, PROF. C. E. TURNER.
Mon., Tues., Wed., Thurs., Fri., 9-10 A. M., July 10 to August 11, inclusive. 30 hours. Fee \$20.

This is a course of 30 classroom hours designed for teachers and for school nurses who have teaching responsibilities. The course begins with a brief statement of the organization and administration of school health work, but devotes most of the time to a detailed consideration of the subject matter and procedure in health teaching through the various grades. New methods of health teaching as they have been developed in experimental work by the instructor and by other health workers in various parts of the country will be described. These methods include teaching with motion pictures, story telling, scrap books, competitions, weight records, etc. There will be five extra periods given over to special lecturers, classroom demonstrations, or to the study of clinics for the correction of posture, faulty diet, and other defects.

2. PERSONAL HYGIENE AND NUTRITION, PROF. JOHN W. M. BUNKER.

Mon., Tues., Wed., Thurs., Fri., 10-11 A. M., July 10 to August 11, inclusive. 25 hours. Fee \$20.

This course will include a discussion of the practical aspects of the right use and proper care of the human body. Special attention will be given to food requirements with practical work in planning the diet.

Posture, exercise, bathing, clothing, sleep, ventilation, mental hygiene, basal metabolism, maintenance requirements, over-weight and underweight, infant feeding, and foods of the foreign-born, are among the topics that will be considered.

3. SANITARY SCIENCE AND PUBLIC HEALTH, PROF. S. C. PRESCOTT AND PROF. C. E. TURNER.

Tues., Wed., Thurs., Fri., 11-12 A. M., July 10 to August 11, inclusive. 20 hours. Fee \$20.

This is a course of twenty lectures amply illustrated by lantern slides and motion pictures, and supplemented by outside reading. It is designed to give a comprehensive view of health and disease, parasitism, resistance and immunity, how germs attack and how we may secure protection against disease by vaccination and the use of antitoxin. The broader public health aspects of water supply and waste disposal, food control and sanitation and the work of official public health agencies will be explained.

4. ELEMENTARY BACTERIOLOGY: A CONSIDERATION OF THE RÔLE OF MICRO-ORGANISMS IN EVERY-DAY LIFE, PROF. JOHN W. M. BUNKER AND DR. M. P. HORWOOD.
Mon., Tues., Wed., Thurs., Fri., 1-3.30 P. M., July 10 to August 11, inclusive. 60 hours. Fee \$30.

Many courses in Bacteriology deal only with relation of microbes to disease. This course is designed to give the teacher or general student a comprehensive, well-balanced survey of the behavior of micro-organisms and the part they play in affecting the environment of mankind.

While the relation to disease will be considered, special emphasis will be placed on such topics as the relation of bacteria to soil, water, and foods, fermentation and its applications in the home and in industries, bread-making, butter, cheese-ripening, food preservation, water purification, refuse disposal and soil fertility.

Lectures will be supplemented by demonstrations and laboratory work.

5. BACTERIOLOGY 730,* DR. M. P. HORWOOD.

Mon., Tues., Wed., Thurs., Fri., 9-12 A. M., July 10 to August 18, inclusive. 90 hours. Fee \$40.

A course especially planned for those who intend to follow bacteriology as a profession. The work will correspond in a broad way with that of the first term of the Institute course 730. It includes a fundamental consideration of the biology of the bacteria with a thorough study of selected types, and prepares the student for advanced work in technical phases of the subject. Preparation in chemistry, biology, and the use of the microscope is desirable.

6. PUBLIC HEALTH LABORATORY METHODS 738,* DR. FRANCIS H. SLACK.

Mon., Wed., Fri., 1-4 P. M., July 10 to August 18, inclusive. 54 hours. Fee \$30.

A practical course in diagnostic methods and other procedures employed in public health laboratories. Training is given in laboratory diagnosis of diphtheria, tuberculosis, typhoid fever, malaria, and certain other communicable diseases, and in the Wassermann and other complement fixation tests. This course is valuable for physicians, laboratory technicians, and those preparing for administrative positions in public health. It is in general comparable to the first term work in the Institute course 738.

SCHEDULE OF HOURS—COURSES FOR TEACHERS AND SCHOOL NURSES.

9-10 A. M. Methods of Teaching Hygiene and Public Health in the Public Schools.

10-11 A. M., Personal Hygiene and Nutrition.

11-12 A. M., Sanitary Science and Public Health.

1-3.30 P. M., Elementary Bacteriology: A Consideration of the Rôle of Micro-Organisms in Every-Day Life.

PROFESSIONAL COURSES—JULY 10 TO AUGUST 18.

9-12 A. M., Bacteriology 730.

1-4 P. M., Public Health Laboratory Methods 738.

*The fee for both 5 and 6 will be \$65.

Correspondence.

ON THE REVIEW OF DR. BULKLEY'S BOOK.

April 5, 1922.

Mr. Editor:

Your review of my new, large, fourth book on "Cancer and Its Non-Surgical Treatment" has just come to my notice. It gives a fair presentation of the truth which I have endeavored to set before the medical profession during the last ten years, but the remark that "if its results were as successful as the author claims, it would long ago have been universally accepted." The writer has evidently forgotten the length of time which it usually takes for a new idea in science, mechanics, and medicine to be accepted by all. Jenner, Pasteur, and Lister were long doubted and ridiculed, and now, even Jenner's life-saving discovery is contested by some, after 100 years of proof. The medical profession in general have accepted the new cancer proposition, as shown by the wonderful reviews in good medical journals, and by the hundreds of letters received from able men all over this country and outside. The relatively few research and surgical autocrats and oligarchs, who ignore it through wilful ignorance, will have to yield, sooner or later.

The closing sentences of the review amuse me. Of course I am wrong in the opinion of these latter, for obvious reasons, but none of my proofs have ever been refuted, or scientifically disputed.

The allusion to heresy and its punishment is also amusing, but sad. We all know that persecution for a good and righteous cause has always been followed by an acceptance and spread of the cause. I wish that my book could be publicly "burned at the stake." The Bible has often had this reception at the hands of deluded men, but at the present day our American Bible Society has issued, on the average, five million copies each year, for some years. While I do not expect my book to reach that circulation, the way it is called for all over the world is certainly very encouraging. I wish your reviews were signed, in order that I might know who was the author of the brilliant suggestion.

I remain,

Sincerely yours for the truth,
L. DUNCAN BULKLEY, M.D.

[NOTE—The JOURNAL presents the somewhat caustic and sarcastic letter of Dr. Bulkley because its policy is to give both sides fair opportunity for the expression of opinions.

The men who review books for this JOURNAL are selected because of their attainments. Many book reviews are worthless because no real criticism is expressed. If a book is sent to the JOURNAL, it is our policy to render an impartial opinion. Readers expect that notice should be taken of doubtful or objectionable views. The present policy will be continued regardless of objections offered by writers. —Editor.]

DEPARTMENT OF PUBLIC HEALTH.

REPORTED WEEK ENDING APRIL 15, 1922.

Disease	No. of Cases	Disease	No. of Cases
Chicken-pox	104	Pneumonia, lobar ..	149
Diphtheria	141	Scarlet-fever	182
Dog-bite	4	Septic sore throat..	2
Dysentery	1	Syphilis	37
Encephalitis lethargica	14	Suppurative conjunctivitis	18
Epidemic cerebro-spinal meningitis.	3	Trachoma	3
German measles ...	23	Tuberculosis, pulmonary	141
Gonorrhea	98	Tuberculosis, other forms	39
Influenza	66	Typhoid	9
Measles	876	Whooping-cough ...	104
Mumps	127		
Ophthalmia neonatorum	25		

NOTICES.

CENSORS' MEETING.—The Censors of the Suffolk District Medical Society will meet for the examination of candidates at the Medical Library, No. 8 The Fenway, Thursday, May 4, 1922, at 4 o'clock. Candidates should make personal application to the Secretary, and present their medical diploma at least one week before the examination. Richard H. Miller, Secretary, 402 Marlborough St., Boston.

The American Association of Anaesthetists and the Mid-Western Association of Anaesthetists will hold a joint meeting in St. Louis, May 23-24, at Hotel Jefferson, the first three days of the A.M.A.

BETH ISRAEL HOSPITAL.—There will be a Clinical Meeting in the Auditorium, Thursday evening, April 27, 1922, at 8:15 P. M. Program: The Present Status of Diabetic Treatment, by Dr. Elliott P. Joslin. Discussion: Dr. F. Gorham Brigham, Dr. B. H. Ragle, and Dr. Harry Linnenthal. Physicians are cordially invited. Telephone Roxbury 5940. Refreshments will be served. E. Granville Crabtree, M.D., Sec.

HARVARD MEDICAL SOCIETY.—A meeting of the society was held in the Peter Bent Brigham Hospital Amphitheatre Tuesday evening, April 25, 1922. Sir Culbert Wallace of London was the speaker of the evening, his subject being "St. Thomas's Hospital."

HARVARD MEDICAL SCHOOL RESEARCH CLUB.—At the next meeting of the Research Club to be held on Friday, April 28th, in the Amphitheatre of Building A, at 12:30 o'clock Mr. George DeBord will talk on "Studies in Bacterial Metabolism," and Dr. H. Weiss will talk on "The Serum Therapy of Botulism."

MIDDLESEX SOUTH DISTRICT SOCIETY.

At the Annual meeting held April 19, at the American House, the committee appointed to present a memorial of the life of Dr. George Alexander Oviatt reported the following:

DR. GEORGE ALEXANDER OVIATT, 1849-1922.

Dr. George Alexander Oviatt, a member of this Society, died at the Waltham Hospital, February 26, 1922, of broncho-pneumonia, terminating several months' illness from cancer of the liver.

Dr. Oviatt was born in Boston March 30, 1849. His father, Rev. George A. Oviatt, a man of saintly, consecrated life, was the first minister of Shawmut Church, Boston. His mother, Isabella G. Parker, of Boston, a niece of Judge Joel Parker of Cambridge, was a refined and gracious woman. He married Ella A. Hunt of Sudbury, who survives him, also a son, grandson, and sister.

Dr. Oviatt graduated from Yale in 1872 and from the College of Physicians and Surgeons, New York, in 1875. He commenced practice at once in Sudbury and continued his work there for 46 years. For 12 years he served as councillor of the Massachusetts Medical Society, for three years he was librarian of this Society, and for two years president of the Framingham Medical Society. He had also been Associate Medical Examiner of the Ninth Massachusetts District for 10 years.

He was interested in the affairs of his town, serving as a member of the Board of Health, of the School Committee, Trustee of the Goodnow Public Library, and as School Physician.

He was a member of the American Medical Association, the Massachusetts Medical Society, the Massachusetts Medico-Legal Society, the Boston Medical Library Association, and the Wayland Society of Arts and Crafts.

He published articles in THE BOSTON MEDICAL AND SURGICAL JOURNAL, and an historical address on "Ye Ancient Physician of Sudbury Old Towne." He was fond of music and played at different times the organs in Sudbury and Wayland.

Dr. Oviatt was a well-trained, kind and sympathetic physician. For 46 years he responded cheerfully by day and by night to all calls from the suffering, the poor and the needy. The people in his district will long remember his unselfish and devoted life. He was an honor to our profession.

LEGISLATIVE MATTERS.—The Committee on Ways and Means has declined to recommend an increased salary for Miss Riddle, chairman of the Board of Registration of Nurses. The Midwife bill still reposes in the hands of the Committee on Ways and Means.

RECENT DEATH.

DR. EDWARD JOHN BREARTON died at Dorchester April 15, 1922, aged 44. He was a graduate of the Tufts College Medical School in the class of 1905, joined the Massachusetts Medical Society in 1909, and practiced in Dorchester. He had been a councillor of the State Medical Society since 1920.

The Boston Medical and Surgical Journal

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Original Articles.

DRIED MILK.

BY TIMOTHY LEARY, M.D., BOSTON.
Professor of Pathology, Tufts Medical School.

THE fact that milk is a fluid and, further, that it is a good culture medium, is responsible for its transmission of disease. The evidence is fairly complete that it is not the few typhoid bacilli which are implanted in milk originally that produce epidemics, but the result of their multiplication and distribution throughout a favorable culture medium. With streptococci originating in the milk this statement is, of course, less true. The evidence is complete with reference to food poisoning with milk or milk products, such as ice cream, that it is not the original bacterial content of the milk that counts, but the numbers that arise from multiplication after the milk has been drawn. It is self-evident that the original dosage of bacteria is of great importance, and nothing which has been said is to be construed as justifying, in any way, carelessness in the collection or handling of the milk. The basic fact remains that multiplication of the bacteria originally in the milk, or implanted in it during or after its collection, makes of this nearest approach to an ideal food a menace.

Because of its fluid character milk is a perishable food, and a large part of the expense of milk as delivered to the householder arises out of its perishable character. Special cars or trains with express transportation, special containers, refrigerators, special delivery, and meticulous care in handling, are responsible for a large part of the expense of what is unanimously agreed to be the most necessary single food of the human being.

The following table of costs of milk as supplied to the consumer, is published by a local milk contractor:

THE COSTS OF A QUART OF MILK

1. Paid to milk producers (average for year)	8.23 cents
2. Station care, testing, weighing and carefully icing milk for transportation to the city	0.26 cents
3. Loss by reason of manufacturing the surplus milk and through shrinkage	0.25 cents
4. Transportation from the country station to the city railway terminal	0.91 cents
5. Furnishing containers for shipping milk from country to city	0.07 cents
6. Maintaining and operating milk wagons, harnesses, hay, grain, etc., for horses	1.28 cents
7. Keeping books and furnishing office supplies, insurance, telephone, and the thousand and one things necessary to the efficient general management of a business	0.78 cents
Officers' and executives' salaries for services rendered	0.06 cents

8. Washing and sterilizing cans and covers	0.11 cents
9. Maintaining and operating model sanitary milk plants.....	0.23 cents
10. Perfectly pasteurizing milk for absolute safety. Furnishing countless glass jars for unit delivery and washing and sterilizing milk jars, and	
11. Furnishing refrigeration and ice to keep milk cold.....	0.96 cents
12. Maintaining and operating chemical and bacteriological laboratories, and buying and inspecting milk.....	0.07 cents
13. Maintaining and operating a fleet of trucks with gasoline, oil, tires, supplies, etc.	0.67 cents
14. Advertising milk to the public, thereby creating good-will and increasing the volume of business.....	0.20 cents
15. Hiring and training and wages for an organization of foremen, salesmen and helpers to sell and distribute milk to the public	2.94 cents
16. The unavoidable loss through bad debts	0.26 cents
<hr/>	
The total cost of a quart of milk delivered to the consumer.....	17.28 cents

A glance at the above list will indicate what a large proportion of the cost is due to the perishable character of the product.

The removal of the water from milk makes it a poor culture medium and largely does away with its perishable qualities. Various methods of concentration, by evaporation, by condensation with or without sugar, and finally by drying, have been practised. Evaporated and condensed milk retain a considerable bulk of water, and from a practical standpoint, have no place in modern economy, if drying can be carried out without the loss of any of the milk qualities.

There are two standard processes of drying milk in use today, the roll and the spray systems. The older vacuum pan method has been largely discarded.

In the roll process, the milk adheres to the surfaces of hot rolls, heated usually by steam (110° to 140° C.), and after a partial revolution of the roll is scraped off in the form of a moist powder, the whole procedure requiring usually a matter of seconds.

In the spray process the milk is atomized under great pressure into a chamber where it meets whirling currents of warm air. The temperature is lower than that used in the drum method, but the exposure is longer. The droplets of milk give up their water to the warm air and the solids drop to the bottom of the chamber. The atomization of unconcentrated milk gives rise to so fine an impalpable powder, because of the small solid content of the droplets, that the powder tends to cake and does not mix readily with water. The milk is, therefore, usually concentrated before being atomized, the resulting powder showing larger granules and mixing with water more readily.

It has been shown that the reconstructed milk from milk powder, prepared by either method, has, in general, the physical and chemical properties of the original milk. The only debatable point is with reference to the flavor and to the retention of certain enzymes and notably of vitamins.

VITAMINES.

Fat-soluble vitamine A is highly resistant to heat, though not to oxidation, and is retained apparently in large part by either method of drying milk. It is intimately associated with the fat pigments, and is destroyed by exposure to light, which destroys these pigments¹. Water-soluble vitamine B is relatively insensible to heat, but susceptible to oxidation. It is not seriously affected by drying, and in the storage and handling of milk powder the loss of this vitamine should be very slow. Emmet and Luros² discuss a possible difference between the anti-neuritic and growth-promoting vitamins, which have been classified together under the label "water-soluble B," based on the greater heat lability of the antineuritic vitamine; but the heat resistance of even the antineuritic vitamine is so great that it would not be injured by the temperatures used in drying milk.

While it is recognized that fat-soluble A and water-soluble B vitamins are so abundant in milk that the loss even from oxidation is not vital, there is ground for debate with reference to the antiscorbutic vitamine, *i.e.*, water-soluble C. It should be kept in mind that raw milk should not be considered as necessarily having potent antiscorbutic properties.^{3, 4}

From the practical standpoint, the *Reports of the (British) Local Government Board on Public Health*, etc.⁵, after an exhaustive study of dried milks (quoted also in the *U. S. Public Health Reports*)⁶, conclude that:

"The evidence from the clinics (infant feeding) is unanimous as to the absence of scurvy on a diet of dried milk. Millard and Naish, in England, confirm the testimony of Mille, in Belgium, and Gautier and Genevoix, in France, that scurvy is not to be feared." Attention is called, however, to the reports of Chick *et als.*⁴, that even raw, cow's milk is poor in the antiscorbutic vitamine, and that the heating or drying of milk further diminishes the amount of this substance.

In the summary and conclusions it is further stated that, "The preparations with which dried milk may be compared are boiled milk, sterilized milk, and humanized (modified) milk. From the point of view of chemical composition, boiled milk and sterilized milk correspond fairly closely with reconstituted dried milk. In all three cases the milk constituents are altered by heating, but I think there is ample evidence

that these alterations do not seriously affect the nutritive value of the milk."

One is tempted to wonder whether the European infant is not more adaptable or, perhaps, more resistant than the American infant, when one reads the following unorthodox judgments with reference to humanized (modified) milk.

"I would not like to say that modification of cow's milk is not, on some occasions, very valuable and even necessary, but I am of opinion that, as a rule, simple modifications only are needed, and that most babies can be educated to take cow's milk either unmodified or only slightly modified, and that it is probably only in exceptional cases that specially modified milk needs to be given continuously for prolonged periods. I think there is a considerable reaction against the elaborate and expensive modifications of cow's milk to make it conform more or less closely to some ideal composition, which will render the milk comparable from a purely chemical standpoint with human milk," etc.

The work of the British investigators was based upon milk dried by the cylinder or roll method (six different patented processes), by the blowing of hot air through milk (one process), by vacuum pan drying (one process), and by one spray drying process. The report is not discriminative as to the difference between roll dried and spray dried milk.*

Since this report was made, several laboratory investigators have noted a difference between roll dried and spray dried milk, with reference to the preservation of the antiscorbutic vitamine.

Hess and Unger⁷ tested a brand of dried milk, which had been heated to 116° C. for one minute (evidently by the roll process), and found that when it was given to the guinea pig to the equivalent of 80 c.c. of fresh milk, it was able to cure scurvy. But they say further (p. 228), "It should be remembered, however, that milk heated for a long period in the course of drying loses much of its protective value, and furthermore, that our experience has not embraced the question of whether dried milk undergoes gradual changes in the course of a period of many months." . . . "Babies fed on pasteurized milk must have additional antiscorbutic food in their dietary." . . . "The fact that cow's milk is pasteurized or boiled, that it is not perfectly fresh and has undergone considerable handling, that it is diluted and cannot be given in full strength, all contribute to decrease its antiscorbutic potency."

Hart Steenbock and Smith⁸, in a study on

"Experimental Scurvy," conclude: "Milk sterilized at 120° C. for ten minutes, commercial unsweetened condensed milk, and the commercial milk powder (spray process) examined, had lost their antiscorbutic properties, when used in quantities equivalent to an amount of raw milk which would prevent scurvy in guinea pigs on a diet of rolled oats and dried hay."

From a later, more extensive study of milk powders, the same authors⁹ conclude:

1. "Milk powders vary in their antiscorbutic properties. Aside from the factor of the initial quantity of this vitamine in the milk as influenced by feed, the powders vary in their potency with the process used in their manufacture, the spray processes of manufacture being more destructive of the antiscorbutic properties than the roll process."

2. "These results should in no way condemn the milk powders made by the spray processes. They only point out their limitations when used as the sole source of nutrients in infant feeding."

3. "Probably with all milk powders, irrespective of method of manufacture, the safest procedure in a restricted dietary, particularly in infant feeding, is to supplement them with some potent source of the antiscorbutic vitamine. A possible exception to this statement would apply to the powders made by the (roll) process, where the cow's ration is made rich in the antiscorbutic vitamine by the proper selection of roots and tubers."

Jephecott and Bacharach¹⁰, as a result of a study of "The Antiscorbutic Value of Dried Milk," conclude: "Animals have been fed upon summer milk, winter milk, and neutralized milk dried by a roller process, and upon milk dried by the spray process. In the case of the summer and winter milks, the antiscorbutic values were found to be about equal to one another and to those of the original raw milks. The neutralized milk had an antiscorbutic value slightly less than that of the raw milk, and the spray process dried milk was markedly deficient in antiscorbutic value."

Dutcher and Askerman¹⁵ report the result of experiments on guinea pigs in which the antiscorbutic value of raw milk and dried milk was compared. The dried milk was produced by spraying milk into a cell four feet square. The temperature of the chamber was 115° C. The temperature at the spraying nozzle never equalled 100° C. Each quart of milk required 1400 cubic feet of hot air for drying. The milk powder lay on the floor of the chamber until drying was complete,—a matter of two to three hours. The control animals were fed on a cereal diet with 30 c.c. raw milk per day, the test animals on a similar diet with 30 c.c. reconstituted milk from the dried milk per day. All test animals died in

*There is collateral evidence in the report which suggests that most of the infant feeding which the report deals with was carried out with roll-dried milk.

16 to 42 days. of scurvy. The control animals were well at the end of the test.

Why should roll dried milk differ from spray dried milk in its antiscorbutic value?

In the roll dried process the milk is subjected to heat for a matter of seconds and comes off the roll still steaming. It is exposed to oxidation under heat for a comparatively short time. In the spray dried process the milk is divided into minute particles and exposed under ideal conditions to oxidation by the drying agent (heated air). Furthermore, it drops in powdered form to the floor of the drying chamber, where it remains, under the influence of heat and air exposure until the batch of milk has been dried.

McClendon¹¹ describes a method of spray drying milk in which the antiscorbutic vitamin is preserved through the use of flue gas, in which the amount of air is reduced to a point where some carbon monoxide persists, in order to prevent the presence of oxygen.

It should be made plain that the antiscorbutic vitamin resists both heat and oxidation in a strongly acid medium as it does not in a weakly acid medium, such as milk. It is, therefore, preserved in great part in the juices of acid fruits, in which the vitamin is normally present in large quantity (orange, lemon, but not lime)¹², and in tomatoes.

Givens and McClugage¹³ prepared a spray powdered orange juice by the method used in spray drying milk, without the loss of antiscorbutic properties, and report¹⁴ that the powdered orange juice was still effective in its antiscorbutic properties two years after dehydration.

The absence or insufficiency of the antiscorbutic vitamin in the dietary may not be great enough to produce definite symptoms of scurvy, but the importance of this substance may be far reaching in another direction. The work of Percy Howe has shown that one of the results of a diet deficient in the antiscorbutic element is a susceptibility to infection, and our own work (unpublished) suggests that a deficiency in the antiscorbutic vitamin, not great enough in the normal animal to provoke symptoms of scurvy, may precipitate such symptoms of scurvy when the animal is subjected to bacterial infection or intoxication. The English work on infant feeding with dried milk products fails to furnish data with reference to the frequency of infection in children fed on dried milk, as compared with raw milk.

After all, however, a discussion of the experimental evidence of the preservation of the antiscorbutic element in the drying of the milk is more or less academic, since (to quote Jephcott and Bacharach), "It is a question how far such experiments (guinea pigs) are applicable to infant feeding . . . It should be rec-

ognized, however, that whilst such dried milk (roll method) is apparently equal to raw milk in antiscorbutic value, neither is rich in antiscorbutic vitamin, and where infants are only taking small quantities of milk, or are upon a diet which is mainly farinaceous, the addition of a little fruit juice is not only desirable but essential."

From a practical standpoint, then, no diet should depend upon milk, raw or dried, for its antiscorbutic element. This substance should be supplied from the sources known to be rich in it, such as orange juice.

THE BACTERIOLOGY OF DRIED MILK POWDER.

The report of the British investigators of dried milk includes a thorough investigation of the bacteriology of the subject. Their findings justify the conclusions:

1. That drying milk by the roll process leads to the destruction of a large percentage of the bacteria present, in certain cases to almost complete sterilization. Spore-bearing bacteria and resistant organisms, like the tubercle bacillus, survive the process.

2. Drying by the spray method does not affect to a similar degree the number of bacteria present. Pasteurization is resorted to preceding this method of drying, the lowest counts being found immediately following this stage (pasteurization).

3. "It is clear that the processes used in drying milk largely reduce the number of bacteria present, but do not give an absolutely sterile product."

4. Tubercle bacilli were added to milk which was then dried by the roll process. Guinea pigs were inoculated with the dried product. "The course of the disease, produced by these bacilli, was very much slower than that of the disease produced in guinea pigs inoculated with the same amount of untreated tuberculous milk. The tuberculosis produced by the heated bacilli was *latent* or *occult* for some four weeks." Feeding young rabbits on oats and the dried tubercular milk made up with sterile water, led to no evidence of tubercular infection. It is concluded that, "Drying the milk does at least lessen the danger of infection from tuberculous milk."

5. "Many of the bacteria found in preserved milk as found on the market, owe their presence to a process of *recontamination*."

"Preserved milk is sometimes handled by persons who have previously handled the fresh milk; it is also exposed to the same sources of contamination (hands, clothing, soil, dust, water used to clean vessels, etc.), as the fresh milk. These facts are sufficient to account for the great resemblance between the bacterial flora of fresh and of preserved milk."

"The distribution of bacteria in the milk

before, during and after treatment, indicated clearly that *many of them which had disappeared* while the milk was heated and protected from the access of dust, and from contact with contaminated articles, *had reappeared* in the final stages of preparation when no longer protected against contamination."

Frequent sources of contamination were the powder mill used following roll drying, the sifting following spray drying (for the purpose of homogenizing the milk powder), and the packing.

"The absence of organisms of the *B. Coli* type in such a large proportion of the samples is also satisfactory." "The frequency of streptococci is . . . surprising. Their presence in the dry milk was probably due to the reinfection from the air, etc., during the process of powdering and packing." . . . "The entire absence of evidence of tuberculosis is satisfactory."

6. Bacteria in dried milk are slowly reduced in number on keeping, in sharp contrast to the picture in liquid milk in which bacteria rapidly multiply.

It is evident from the findings recorded above that milk drying should do away almost completely with pathogenic bacteria present in the milk when drawn, *e.g.*, streptococci, and general use of dried milk should do away with this type of milk-borne epidemics.

It should be possible to evolve mechanical devices which should protect the milk powder from contamination during powdering and packing. Adaptation of machinery already on the market, and used for handling food products, should result in the transfer of the milk from the drying device to the final sterile container without recontamination.

The average bacterial count of daily samples of reconstructed milk from all of the (American?) plants of the principal spray-drying milk company in the world last year was 6000 bacteria per cubic centimeter. This is the count of highly certified milk.

The changes produced in milk by powdering:

A. Slight loss in *acidity*.

B. Soluble *salts* of calcium are converted into insoluble salts, affecting the action of rennet.

C. *Lactose* is unaffected.

D. *Albumin* and *globulin* are partly coagulated. *Caseniogen* is not coagulated, but all observers seem to agree that it is more readily digestible after heating.

E. Chemical changes in the *fats* are slight; possibly a slight degree of oxidation occurs. The *lecithins* are altered, but little is known as to the exact changes.

The fat globules of reconstituted milk are generally larger than those of fresh milk.

F. *Ferments* are destroyed. Lane-Clayton¹⁶ says: "Although . . . the ferments of

cows' milk are destroyed in the process of drying, this loss is of no importance as regards the value of dried milk as a food for infants."

G. *Solubility*. "Porcher"¹⁷ points out that various dried milks differ in their capacity for reconstitution. A milk powder made by the process of spraying milk into hot air, gives a very homogeneous fluid with little separation of fat, whilst those made by the hot roller process show a tendency to the formation of oily drops on the surface of the reconstituted milk.

H. *Rennet reaction*—The curd produced by rennet in reconstituted dried milk is flocculent and finely divided, in contrast to the firm, tough and cohesive clot produced in raw milk. Sommerville¹⁸ considered that the modification of the casein, as indicated by this test, was one of the reasons why dried milk was so useful in the feeding of babies. Porcher¹⁷ states that reconstituted dried milk coagulates with rennet just like human milk, and cannot be made into cheese because of the character of the curd.

KEEPING QUALITIES OF DRIED MILK.

Full cream milk powder in tins will keep for three months or longer. Skimmed milk powder in tins will keep for a year or longer.

The full cream milk powder tends to become tallowy in flavor after long keeping, the change apparently depending upon oxidation of the fat. This change occurs earlier in spray dried powders, in which oxidation plays a more important rôle than in the roll dried powders.

Exposed to air, the casein becomes gradually insoluble.

VALUE OF DRIED MILK AS A FOOD.

One of the absurdities of the feeding of our troops, both at home and abroad, during the war, was that while England was importing thousands of tons of dried milk from this country, our own troops were supplied condensed milk, less palatable, more difficult to transport because of its water content, and a less desirable article of food, as will be shown in the following quotations from the reports of the pediatricists who were consulted by the British Commissioners for the study of dried milk.

Another interesting side light on this subject is the story of the rise and fall of Sanatogen. Most of us remember this highly advertised patent food of German origin, backed by the testimonials of famous men and women, including, among others, Sir Gilbert Parker. It was the opinion of the writer that this expensive substance consisted in large part, or wholly, of skim milk powder. When the war cut off the importation of this food from Germany, the American agents, who took over its manufacture, immediately sought bids from

dried milk manufacturers on a supply of 30,000 pounds of skim milk powder per month.

The report of the British investigation of dried milk for *infant feeding* contains the following conclusions:

"I am of the opinion that when breast feeding is impossible dried milk is a very valuable food for infant feeding. It is, perhaps, when all considerations are taken into account, one of the most generally useful of all of the available preparations of cows' milk. . . . This statement applies to dried milk of recent manufacture made carefully under hygienic conditions from a good quality of cows' milk. It does not necessarily apply to a dried milk of poor quality made under dirty conditions, or carelessly packed and stored, or which has been kept for so long a time as to have deteriorated materially in solubility or flavor."

"*Healthy Infants.* Dried milk can be used successfully in the rearing of sound and healthy infants. For this purpose it is probably no better than, and may be slightly inferior to pure, clean milk," etc.

"*Sickly Children.* There is very strong evidence that a large proportion of children who are marasmic, suffering from digestive troubles, vomiting, etc., take dried milk very well, and show remarkable progress. Even in cases in which the condition has been most grave, the results have been admirable. In such conditions it is frequently tolerated better than ordinary cows' milk. A few cases of intolerance to dried milk have been observed, but these cases seem fewer with dried milk than with other preparations of milk," etc.

"*Diarrhoea.* Several authorities consider that it is undesirable to give dried milk when diarrhoea exists. I think this opinion is probably justified in cases of extreme diarrhoea, but in milder cases dried milk seems to be well borne and often leads to a rapid improvement. In cases of diarrhoea, it may be desirable to give dried skimmed milk for a time instead of the full cream or half-cream variety."

"Dried milk has been given in several towns, at infant clinics, with a view to avoiding summer diarrhoea. Mandel considers that the value of using milk powder with this object has been strikingly demonstrated in the case of Rotherham. He believes that the incidence of summer diarrhoea bears a distinct relationship to the bacteriological contents of the milk, and that the investigations at the Rockefeller Institution in New York show that the disease is excessive among infants fed on food rich in carbohydrates, such as condensed milk. He thinks, therefore, that it is not only the bacteriological purity of dried milk which accounts for a lower incidence from summer diarrhoea among infants fed on it, but also that its composition approximates more closely to human milk."

CAUSES OF SUCCESS OF DRIED MILK.

Under the above caption the British Report makes the following statement:

"The physical and chemical changes produced by the processes used in the preparation of dried milk so alter its character that it is better borne by the infant's stomach than ordinary cows' milk, whether raw, boiled or sterilized. The dried milk is easily and completely assimilated. It is palatable. Millard says the babies like it and do not relish any change. The effect on nutrition is very marked. Where weight-charts have been kept regularly, they show a steady advance, and the child's flesh is firm and solid, not flabby, and the general tone and condition good."

"The fact that dried milk made by certain processes is not entirely soluble on reconstitution does not affect its digestibility or only for good. Dr. Lapage told me that his experience showed that it did not matter for infant feeding, and others have come to the same conclusion."

CONCLUSION.

Little argument is needed to demonstrate the advantages which should arise from the elimination of the substance, *i.e.*, water, which gives to milk its perishable quality.

Hygienically, the milk-borne epidemic, either originating from the milk as drawn (a), or from contamination during handling (b), should be done away with. The drying process should eliminate the organisms, such as streptococci, producing the first form of epidemic. The second form, as illustrated by typhoid, is dependent upon the multiplication of the original contaminating dose of bacilli in the fluid milk. The drying of the product makes improbable the successful multiplication of the bacteria or their wide distribution throughout the product.

Economically, all of the emergency procedures which are necessary in the handling of liquid milk would be done away with, refrigeration, special cars, breakable special containers, and most of all special delivery. It will be recalled that during the war it was found necessary to pay the milk drivers in New York City \$50 per week—\$2,600 per annum, and a percentage of the receipts, for the highly expert services required of them. The recent milk strike in New York only emphasizes anew the desirability, and perhaps necessity, of doing away with the emergency element which the perishable character of milk introduces into its handling.

A hidden cost of milk, which does not appear in the list of costs submitted, arises from the public inspection of the sources of supply, and the further laboratory investigation of the quality and cleanliness of milk as delivered. This latter cost, necessitated largely by the

tendency of milk to deteriorate in handling, could be in part done away with if the use of powdered milk were universal. The only inspection necessary would be the inspection at the source, and this could be made more rigid for less money than is now expended for the present double inspection, *i.e.*, at the source and at the point of delivery.

The development of present-day apparatus for milk drying along indicated lines should make it possible for milk producers, individually, or in groups, to powder their own milk at the source, thus becoming independent, to a degree, of seasonal demands, and this should cheapen the price of milk to the consumer.

Aesthetically, the rumble and reverberation of the milk wagon in its nightly disturbance of the peace would be abolished, to the joy of the insomniac, and the better rest of the deposed milk driver and his family.

An important drawback to the universal use of milk powder is its price. It costs today, at retail, apart from the trouble of its preparation, more than liquid milk. When one considers the cost of the emergency features in the handling of liquid milk, which do not enter into the cost of powdered milk, one is puzzled to account for its retail price (70 to 79 cents per lb.), and further puzzled when one learns that the same milk powder sells in barrel lots at 33 to 35 cents per pound. Milk powder is slightly hygroscopic, and for retail purposes has to be put up in tin, but the cost of a tin container does not markedly add to the cost of most food products. It is possible that introductory advertising is an important factor in elevating the price. If so, wider use and competition should serve as correctives.

The physician should know all of the facts with reference to as important a food as milk, and should be the educator of the community with respect to the efficiency and advantages of methods for its preservation. He should be the advocate of drying as a method of preserving milk which, if universally adopted, would mark as important an advance in prophylaxis as typhoid inoculation or diphtheria toxin-antitoxin injection. He should know the limitations of the process, however, and should not recommend, as the exclusive food of a nursing, reconstructed milk from milk powder, without the addition to the diet of an antiscorbutic agent, such as orange juice. He should further recognize that the reconstructed milk is as good a culture medium as fresh milk, and should therefore be prepared only at the moment when it is needed, and with rigid precautions as to cleanliness.

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CHRONIC FERMENTATIVE INTESTINAL INDIGESTION.

BY ISAAC RUDOLPH JANKELSON, M.D., BOSTON.

[From the Clinic of Dr. Paul Cohnheim, Berlin.]

IN 1901 Schmidt and Strassburger described a type of chronic diarrhea characterized by light-colored stools, of sour smell and acid reaction, which contain a large quantity of undigested starch. Further investigations have determined this to be a clinical entity with well-defined course and symptomatology. The clinical recognition of this type of diarrhea, and an understanding of the rationale of its treatment, is of great importance, not only in that it offers us a means of relief for this distressing condition, but that it allows of the possibility of prevention of the more serious forms of colitis which follow in its wake. Herein lies its significance to the practising physician.

The *pathology* of the disease is still somewhat uncertain. Schmidt demonstrated a mild catarrhal inflammation at the beginning of the large intestine in one case. Confirmatory observations are lacking. Clinically we are justified in considering fermentative intestinal indigestion as a mild colitis with involvement of the near-by ileum. It is by no means a functional disease of the large intestine, but must be looked upon as a symptom-complex of colonic disease, associated with hypermotility of the entire intestinal tract and an increased susceptibility of the intestines to the products of fermentation.

The fermentation occurs as a result of bacterial action. Bacteria normally infest the lower ileum and colon. If the intestinal content reaches the cecum rich in carbohydrates, the bacteria whose nourishment consists of carbohydrates thrive, increase in number, overgrow the putrefactive bacteria and, as a result, produce an excessive amount of gas. The disease is thus produced by the overgrowth of bacteria causing fermentation, regardless as to whether or not they are normal inhabitants of the intestinal tract. These bacteria will thrive and cause more fermentation as long as sufficient quantities of carbohydrates are supplied to them.

The secretions of the digestive tract contain no carbohydrates, thus the medium for the development of the fermentative bacteria comes entirely from the food ingested by the host. When no carbohydrates are ingested, or all ingested carbohydrates are absorbed before they reach the lower ileum, these bacteria are starved, diminish rapidly in number, and the fermentation subsides. But if food is constantly supplied, they gradually increase to the point where they irritate the colon and lower ileum, causing at first hypermotility and hypersecretion, leading later to more serious catarrhal conditions of the colonic mucosa. The clinical signs of colitis are present in every well-developed case of chronic fermentative intestinal indigestion.

The patient's *chief complaint* is usually persistent diarrhea. He has two to six movements daily, the stools being pasty in character, only rarely watery. The stool is of light color and sour smell. He complains also of rumbling meteorism and heaviness in the mesogastrium, which are relieved by the passage of gas. There are occasionally heartburn, a sense of pressure in the epigastrium, and palpitation of the heart. At times there is nausea. Vomiting is rare. Colicky pain occasionally occurs and, if present, is relieved by defecation. As the condition goes on he complains of lassitude, vertigo, headaches, insomnia; becomes irritable and unable to work. Later, well-pronounced neurasthenia develops. Vasomotor disturbances may occur. To these nervous manifestations Paul Cohnheim has given the name "enterosthenia." It is important to differentiate this type of secondary neurasthenia, as it can only be successfully combated by treating the underlying intestinal indigestion.

On *physical examination* we usually find but few signs, and these not very characteristic. Ordinarily the patients are fairly well nourished, at times somewhat anemic. The abdomen is usually distended and slightly tender on deep pressure. On palpation we often feel and hear gurgling in the cecum and ascending colon. The stomach often gives important evidence, such as achylia gastrica, hypermotility, ectasy, or an antecedent gastroenterostomy. Proctoscopic examination shows a moderate reddening of the mucosa of the sigmoid, with occasional spastic contractions of the musculature so that the tube is passed only with difficulty.

Examination of the feces furnishes the pathognomonic signs of the disease. Macroscopically the stool is light in color, pasty to watery in consistence and of a sour odor, which is due to acetic and butyric acids. On standing the stool becomes darker, spongy and foul smelling. The reaction of the stools is acid to litmus. Various undigested vegetables can be recognized in the stools. Mucus is either ab-

sent, or is present only in small shreds and in very small quantity.

The most characteristic picture is seen under the microscope, which shows a large amount of undigested vegetable matter of various sorts, and many microorganisms. The clostridium butyricum occurs in large numbers. If iodine is added to the specimen, we find large blue spots scattered throughout the field. These spots are in part due to free starch, in part to the coloring of clostridium butyricum. The appearance of a large quantity of free starch and clostridium butyricum is diagnostic. At times the slide, on the addition of iodine, takes a reddish stain due to the presence of erythro-dextrin. Intracellular starch is always present. Muscle fibers and fat are present only in small quantities.

The Schmidt fermentation test shows excessive fermentation. This test can be used for a quantitative determination of the amount of fermentation. A simpler test, one which with some experience is just as accurate, is the addition of iodine to a slide made of the stools. In this way the amount of free starch can be visualized.

An individual attack of flatulence is curable in from one to three weeks, but the tendency to recurrence persists for a long time, occasionally years. Dietetic errors must be avoided and the patient must live on a strict diet for at least six months. Spontaneous cures have been reported. In these cases we must suppose that for some unknown reason the susceptibility of the intestinal tract to the products of fermentation has diminished, or that the bacteria causing fermentation have lost their vitality. Other cases go from bad to worse and develop severe chronic colitis, some never attaining an ultimate cure. The quantity of free starch found in the stools is an index of the severity of the case. The disappearance of free starch from the stools is a good prognostic sign.

The *treatment* must of necessity be largely dietetic. The theory depends upon starving out the bacteria causing fermentation or at least restricting their food supply, and thus lessening their activity. In so doing we re-establish the equilibrium of the intestinal flora. Even when the treatment is carried out to a successful end, the excessive susceptibility of the intestinal tract to products of fermentation, if once established, will persist. To overcome this we have no remedy, except prolonged training or education of the intestines. This training of the intestines is important if we want to avoid recurrences. Great patience is required in order to carry it through.

The dietetic treatment begins either with total starvation (allowing only unsweetened tea and brandy) or in mild cases with abstinence from all carbohydrates. In severe

cases, and especially those complicated by achylia gastrica, the patient is starved for two to three days. The mild cases can be given a diet of meat, fish, eggs, bouillon, gelatine, butter, beef juice and unsweetened tea. Under this diet the starch and the clostridia butyrica show a tendency to disappear from the stools. The diarrhea diminishes and the patient begins to feel better. This diet is kept up for eight to fourteen days. During this time the patient is kept in bed at rest and the intake of fluids is restricted. After this the patient is given gradually increasing quantities of carbohydrates, provided the stools show no free starch. At first, carbohydrates which are absorbed in the small intestines, such as maltose (not lactose), dextrinized foods, wheat, fine flour, rice, sago, tapioca, are given. Stale bread, zwieback and toast are usually well borne and can be given in small quantities. Milk and all foods containing cellulose, such as vegetables and fruits, are prohibited. This diet is continued until all signs of fermentation disappear. Usually one to two weeks of this diet suffices to cure an attack of fermentation. By this time the stools diminish to one or two a day, of normal color, formed, without free starch, and all subjective symptoms subside. In very mild cases and those which have to continue their daily work, we can begin with this diet, although at times failures will be encountered, where a few days' starvation will cure the attack.

After the attack is over we gradually increase amounts of carbohydrates and, later, add some celluloses in order to educate the intestines to their utilization. During this time frequent examination of the stools should be made, if we are not to overestimate the power of the intestines to utilize and absorb carbohydrates. In this phase of the dietetic treatment progress is slow, and months must elapse before raw vegetables and fruits can be given. Well-cooked and mashed vegetables should be tried before raw ones are added to the diet. In some cases cellulose can never be utilized without the onset of diarrhea. Special care must be given with reference to milk, which in most cases is not well borne. Each case must, to a certain extent, be worked out as an individual problem.

Slow eating and thorough mastication should be insisted upon. Frequent small meals are to be preferred to the conventional three meals a day. If during the course of the treatment recurrence of the diarrhea, with excessive fermentation and starch in the stools should occur, it is proof that we have progressed with our dietetic measures too rapidly, and must start over again. In some cases, if cellulose is added to the diet too early, the patient becomes constipated, due to spasm of the colon.

All the other therapeutic measures are of secondary importance. At the onset of the treatment a brisk cathartic, such as magnesium sulphate, can be used, but only once. Astringents are to be avoided, except in cases where the general debility and discomfort of frequent defecation is burdensome. In these cases bismuth or calcium salts can be used singly, or in combination with charcoal. The latter drug is said to relieve symptoms by the absorption of gas. Opium is of distinct harm, causing constipation with an increased amount of fermentation. Belladonna (or atropine) is the drug par excellence, relieving spasm and diminishing intestinal secretions. The following prescription has served well. Extr. Belladonnae, 0.2; Bismuthi salicylatis, 5.0; Calcii phosphorici, Carbonis animalis aa, 20.0. One teaspoonful, three times a day, after meals.

Cases complicated by achylia gastrica, or by previous gastroenterostomy, require special care. In these cases gastric digestion is largely lacking and therefore the intestinal tract is more apt to suffer; in consequence the treatment must be prolonged.

CONCLUSIONS.

1. Chronic fermentative intestinal indigestion is clinically a mild colitis.
2. Overgrowth of the bacteria causing fermentation is the underlying cause of the fermentation and flatulence.
3. The accompanying neurasthenia is secondary and can only be cured by treating the primary disease.
4. The quantity of free starch in the stools is an index of progress in treatment.
5. The treatment is chiefly dietetic.

THE CARE OF PREGNANCY AND LABOR IN PATIENTS PREVIOUSLY DELIVERED BY CÆSAREAN SECTION.

By JOHN T. WILLIAMS, M.D., F.A.C.S., BOSTON,

*Assistant Visiting Surgeon, Boston City Hospital;
Assistant in Gynecology, Harvard University.*

THE increasing frequency with which Cæsarean section is performed for temporary indications such as eclampsia, placenta prævias, ovarian cyst blocking the pelvic canal, primiparous breech, etc., has given rise to a new obstetric problem: the care of pregnancy and labor in patients previously delivered by Cæsarean section but in whom no present indication exists, except the scar of the former Cæsarean. With the report of cases of rupture of a Cæsarean scar, the epigram "Once a Cæsarean, always a Cæsarean," found ready, almost hasty, acceptance by many obstetricians. The writer's experience, both with the re-

peated Cæsarean section and with a series of ten patients safely delivered one or more times by the natural passages after a previous Cæsarean, has led him to believe that such a maxim is unscientific and unjustified. The future of a Cæsareanized patient should be decided upon the merits of the individual case, guided by rules based upon clinical experience and experimental evidence, rather than determined by a specious but unsound epigram.

In addition to the temporary indications above referred to, there is a distinct class of cases where Cæsarean section is performed in the absence of a distinct pelvic indication because the patient, having lost her first baby after a difficult operative delivery.—usually a dry labor or primiparous breech,—both the obstetrician and the patient desire to take no chances in the second labor. This indication may be unsound, but three of my cases were of this class, where Cæsarean in the second pregnancy (performed by another obstetrician) was followed in the third by easy, normal labor.

The experimental work of Mason and myself¹ showed that in animals a perfectly healed scar would withstand any strain which could be borne by the muscle itself. J. Whitridge Williams,² Losee,³ and others have demonstrated that in a perfectly healed Cæsarean scar regeneration of the muscle fibers takes place and the appearance of the scar is histologically equal to that of the rest of the uterus, but each reported the occurrence of defective scars in which rupture had taken place.

Holland⁴ has collected 92 cases of ruptured Cæsarean scar from the literature. Of these, 36 ruptured during pregnancy, and 48 during labor (the rest not stated). The same writer collected reports of 1,605 Cæsareanized women from 25 British clinics. Of these, 1,103 were followed up, among whom 487 became pregnant again. Delivery by the natural passages occurred in 78; rupture of the scar in 18; repeated Cæsarean section in 352; miscarriage in 47; and the remainder undelivered at the time of the report. In other words, he found that rupture of the scar in subsequent pregnancies occurred in 4%, but that nearly as many ruptures took place during pregnancy as during labor.

The mortality of Cæsarean section is variously estimated by different writers, ranging from 2 to 4% according to Newell,⁵ to 10% according to J. Whitridge Williams.⁶ If the incidence of rupture of the scar is lower than the mortality of Cæsarean section, it would seem logical to allow these patients, where there is no other indication for Cæsarean, to go into labor and be delivered by the natural passages. It is of course important, however, that all such patients should be kept under the closest observation during pregnancy and delivered in a

well-equipped hospital under the personal attendance of an obstetrician qualified to do abdominal surgery.

My personal experience has confirmed this opinion. I have performed sixteen repeated Cæsarean sections, in only one of which was any considerable thinning of the scar found, and in this one instance the thin place corresponded to an area alongside the old scar where an interstitial fibroid one and one-half inches in diameter had been removed at the previous Cæsarean.

I have delivered ten patients (two of them more than once) by the natural passages, following Cæsarean section, without untoward result. An abstract of these cases follows.

CASE 1. Mrs. J. S. First labor terminated by Cæsarean section at the hands of a general surgeon after failure of forceps by her family physician. Evidently a case of contraction ring. Pelvis normal. Second pregnancy, two years later, terminated by normal delivery of child. Placenta, however, adherent to under surface of Cæsarean scar and required manual extraction. Scar felt to be slightly thinned at upper end but gave no trouble. Third and fourth labors also normal. Weights of these three babies, 7½, 9¼ and 10¼ pounds, respectively. Again delivered normally of 10-lb. baby, January 13, 1922.

CASE 2. Mrs. I. L. First labor terminated by Cæsarean section for relative indication; slightly contracted pelvis of justo-minor type, inadequate pains and exhaustion. The second labor was characterized by more effective pains, and delivery was successfully accomplished by high forceps. First and second babies each weighed 6½ pounds. Third labor premature at six months, spontaneous. Fourth labor normal; 5-lb. baby lived. Fifth labor premature at six months. Sixth labor normal at term; 6½-lb. baby lived.

CASE 3. Mrs. G. F. L. First pregnancy terminated by Cæsarean section by another obstetrician for dermoid cyst of ovary obstructing pelvis. Cyst removed. Measurements normal. Second labor terminated by mid forceps (Scanzoni). Baby weighed 7 lbs. 6 oz. Labor and convalescence without untoward incidence.

CASE 4. Mrs. J. E. D. First labor ended in high forceps. Baby died on sixth day of intracranial hemorrhage. Second pregnancy terminated by Cæsarean section at the hands of another obstetrician. In her third pregnancy patient desired to avoid Cæsarean section and as the pelvis was of normal size was allowed to go into labor and was delivered normally of a 7½-lb. baby.

The above four cases have been previously reported in part.⁷

CASE 5. Mrs. M. C. First pregnancy terminated in Cæsarean section for placenta prævia at St. Margaret's Hospital. Second labor: entered Boston City Hospital, at 5 p. m., December 23, 1920. Os half dilated. Foetal head in the pelvis. Measurements: E. C. 18½ e.m., I.S. 24 e.m., I.C. 27 e.m. Determined to wait until fully dilated and terminate by low forceps, which was accomplished without difficulty. Mother and baby made an excellent recovery.

CASE 6. Mrs. T. P. First pregnancy terminated by Cæsarean section for placenta prævia in Boston City Hospital, March 2, 1919. Measurements: E. C. 18 e.m., I.S. 21½ e.m., I.C. 26½ e.m. Second pregnancy normal. Delivered, May 31, 1921, after a five-hour labor, by mid forceps. Convalescence complicated by slight uterine sepsis, but recovery followed. Baby did well.

CASE 7. Mrs. B. W. First labor in 1914, difficult, ending in high forceps and stillbirth. Second pregnancy terminated by Cæsarean section in the hands of another obstetrician, two years later. Consulted writer in third pregnancy. All measurements normal. July 28, 1920, delivered normally of 7¼-lb. baby. Convalescence of mother and baby normal.

CASE 8. Mrs. E. S. First pregnancy terminated by Cæsarean section for mitral regurgitation with decompensation. Two years later she again became pregnant but absolutely declined Cæsarean section. On April 21, 1921, she entered hospital in labor, being about two weeks before term. The head was found to be on the perineum and the patient easily delivered herself of a 5½-lb. baby. Mother and baby made excellent recoveries.

CASE 9. Mrs. F. Y. First labor in 1915, breech, operative, stillborn. Second pregnancy terminated by Cæsarean section at the hands of another obstetrician, in 1916. Pelvic measurements normal. December 26, 1920, she was delivered after an eight-hour labor of a 9-lb. 11 oz. baby by low forceps. Normal convalescence.

CASE 10. Mrs. T. T. First pregnancy terminated by Cæsarean section for ovarian cyst obstructing pelvis. Cyst removed. Normal measurements. July 17, 1921, she went into labor. After about seven hours of unsatisfactory pains, the head being low and the os half dilated, labor was completed by manual dilatation and low forceps. The baby weighed 8 lbs. 8 oz. and did well. The mother's convalescence was somewhat prolonged by subinvolution, but eventually satisfactory.

To summarize briefly: In two cases the indication for the Cæsarean was an ovarian tumor obstructing delivery, which was removed: in two

more it was placenta prævia in a primipara; in two more it was failure of the natural forces to effect delivery. In three instances Cæsarean had been done because of previous stillbirth, without any other indication. In the remaining case, the cardiac patient, some criticism may fairly be made of allowing such a patient, even at her own request, to go into labor. The easy character of her labor and the excellent recovery, however, justify the judgment in this instance.

In connection with the above ten successful cases, two others, who were given the test of labor after a previous Cæsarean but failed to accomplish delivery by the natural passages, are of interest.

CASE 1. Mrs. R. C. Pelvis slightly justo-minor. Two previous Cæsareans, the first after the failure of test of labor, the second by election. At the patient's earnest request, she was allowed a test of labor in the third pregnancy, but as the head failed to pass the brim after two hours of second stage pains she was again delivered by Cæsarean. The scar was found intact in spite of the strain to which it had been subjected.

CASE 2. Mrs. I. F. Cæsarean section, October 25, 1918, after forceps failed to effect delivery. Measurements: E. C. 21 e.m., I.S. 28 e.m., I.C. 30 e.m. Baby weighed 11 lbs. Dystocia believed to be due to excessive size of child, so patient was carefully dieted in second pregnancy and allowed to go into labor. On January 30, 1921, patient entered hospital in labor. Although the second baby weighed only 8 lbs., six hours of hard labor failed to engage the head, and the patient was again delivered by Cæsarean section. The old scar showed no thinning whatever. Convalescence was normal.

On the other hand, where there is a permanent indication for Cæsarean section persisting in subsequent pregnancies, such as contracted or deformed pelvis, there is no justification for allowing the patient to go into labor, but elective Cæsarean section should be the method of choice.

CONCLUSIONS.

1. Patients previously delivered by Cæsarean section must always be delivered in a well-equipped hospital and attended by an obstetrician capable of doing abdominal surgery.

2. Where the indication for Cæsarean section is a permanent one, such as contracted or deformed pelvis, elective Cæsarean section should be performed.

3. Where the indication for Cæsarean has been a temporary one such as placenta prævia, eclampsia, primiparous breech, ovarian or other neoplasms obstructing the pelvis, which

have been removed; or a doubtful one, such as a previous stillbirth without pelvic deformity, the patient may be allowed, under careful observation, to go into labor and be delivered by the natural passages.

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SARCOMA OF THE JAW, WITH CASE REPORT.*

BY HAROLD J. GIBBY, M.D., WORCESTER, MASS.

PRIMARY malignant disease of the upper respiratory tract is not uncommon, judging from the literature. Dunbar Roy¹ has reviewed the literature for the last two decades, to 1919, and has collected approximately 328 cases of sarcoma of the nasal passages, septum, maxilla, and accessory nasal sinuses. Several have been reported since his paper was published. Interest has centered largely in the method of treatment employed, and details of symptomatology and classification of the tumors were meager. One feature is of interest in connection with the case I am reporting; the rapidly fatal cases were either those in which severe surgical operations had been performed, or in which intercurrent disease was responsible. In no case was the progress rapid, due to the sarcoma.

Kyle² states that "Sarcoma of the nose and nasopharynx is not of frequent occurrence; has its origin in adjacent structures and spreads thence into the nasal cavity . . . is of slow development, and may occur at any age, but is more common before 40." "If the tumor is of rapid growth it is usually of small, round-cell variety . . . however, in this location, it is usually of large-cell variety and of slow growth; . . . Pain and deformity depend on location . . . being especially severe when the tumor originates in, or secondarily involves, the accessory sinuses."

My case differs in many respects from the classical pictures, and is of interest for that reason.

CASE HISTORY. A. B., age 14 years. Admitted (Memorial Hospital) November 30, 1921; died December 16, 1921. Diagnosis—Mixed-cell sarcoma of parotid region.

C. C.—Swelling of right cheek. H. P. I.—Patient has noticed a progressive swelling of right cheek five days. Has had a right lower molar tooth extracted about three weeks ago, and has had no pain in her jaw. P. H.—Chicken-pox, measles, occasional sore throat;

otherwise, always well, except for acute rheumatic fever last winter. No trouble with heart until last winter. School doctor advised removal of tonsils. F. H.—Negative for tuberculosis and chronic constitutional disease. Condition on Admission—Patient is a well developed, rather poorly nourished young, white girl, lying quietly in bed, not acutely ill. Right cheek markedly swollen, parotid gland outlined and tense with swelling. Mouth almost filled with slough. Patient complains of the swelling, but not of pain.

Physical Examination: Mouth—Tongue coated, large amount of slough in right cheek projecting forward and across tongue, and involving tissue posterior to right tonsil. Tonsils large and congested. Nose—No obstruction, no discharge. Neck—No enlarged lymph-nodes, thyroid not enlarged. Marked pulsation of large vessels. Heart—Apex beat very forceful and diffuse in fifth interspace 10 cm. from left mid-sternal line; enlarged down and to left, double murmur at apex transmitted to left axilla, systolic murmur at base. Rate 120, regular, muscle tone fair.

December 2, 1921—Incision and drainage; ether. Incision at angle of jaw; no free pus; culture taken, drain placed. Good ether recovery. Flaxseed poultices used for a few days. No drainage of pus. Slough enlarging rapidly, extending up behind tonsil.

December 5, 1921—Consultation, and patient transferred from Surgical to Ear, Nose and Throat Service. It was thought best to remove all of slough possible, to facilitate swallowing. Urine normal, except W. B. C. 3-8 per H. P. F., occasional R. B. C. White blood count 19,000. Sputum negative for organisms of Vincent's angina. Blood culture: no growth in four days. Operation—Under ether, as much of the slough was removed with curette and scissors as possible without exposing the vessels of the neck. Cautery used to check hemorrhage and destroy tissue not possible to excise. The growth extended internal and external to the ramus of the jaw, and included a large part of the buccal surface of the right cheek. Maxilla and antrum involved. Spicules of dead bone from the ramus came away with the necrotic material, and an area of bare bone 3 cm. x 5 cm. exposed.

December 7, 1921—W. B. C. 25,000.

December 7, 1921—Necrotic tissue has increased a little. Slight productive cough; pulse poor quality; rate 140, temp. 98.6. Some impairment of breath sounds throughout lower right lobe and about angle of scapula on left; no râles; frequent cough, especially when taking nourishment; liquid diet. Medication, digalen and caffein. Complains of no pain in jaw; cramps in abdomen, probably due to Murphy drip (glucose solution).

*Read before the Worcester District Medical Society, at Memorial Hospital, Worcester, Feb. 8, 1922.

December 8, 1921. Culture from necrotic area of mouth shows streptococci. X-ray right lung shows moderate peribronchial thickening extending from hilus upward toward apex and down toward diaphragm. Moderate infiltration is noted about the hilus, no definite consolidation. Left lung overshadowed by heart. Findings consistent with bronchitis; no definite pneumonia process made out. Heart appears enlarged, but no positive conclusion without 6-foot plate. Large amount of slough removed without anesthesia. X-ray report of December 1, 1921—Marked swelling of parotid region consistent with abscess; new growth cannot be ruled out, from x-ray standpoint. Right antrum should be taken during convalescent period. Histological—Tissue from cheek consists of masses of atypical fibroblastic cells, from spindle-cells to true tumor giant-cells containing from 2-6 nuclei; there is very little fibrin formation, and great numbers of cells are seen in mitosis. Throughout the tissue are numerous small, newly formed blood vessels, and portions of the tissue exposed externally consist of polymorphonuclear leucocytes and fibrin. Diagnosis—Mixed-cell fibro-sarcoma, acute, inflammatory. (R. Kinnicutt, M.D.)

December 12, 1921—Slough is increasing; patient comfortable, but coughs on swallowing. Lungs are clear. Pulse continues at about 140 and temperature is gradually falling. Slough removed daily.

December 13, 1921—X-ray treatment of right cheek. Radium to be used in 48 hours.

December 15, 1921—Severe hemorrhage at 8 A.M., about one pint of blood lost before checked. Pulse irregular and frequent. Vomited frequently. At 10 A.M., pulse almost imperceptible. Very restless. Pulse improved, but patient remained in poor condition all day. Local condition unchanged.

December 16, 1921—Patient died at 7 A.M. Cyanosis and dyspnoea marked from 1 A.M. to time of death, and patient semi-conscious. Death from toxemia and hemorrhage.

Autopsy: Anatomical Diagnosis—Sarcoma of right maxilla, adhesive pericarditis, mitral endocarditis, left auricular endocarditis, chronic passive congestion and metastasis of sarcoma to lung, metastasis to spleen and chronic congestion, cloudy swelling of kidney. Head not examined; no permission. A wound present at angle of jaw, right side. No swelling. Digital examination found wide opening with rough edges into right maxillary antrum with a tumor process involving this bone and the alveolar ridge adjoining it. The soft tissues about are sloughing. Malar bone and zygoma perforated from the disease. (Oliver H. Stansfield, M.D.)

Notes: The temperature, pulse, and respiration ran irregular courses, apparently without much relation to the physical condition. On

admission, T. 102.3, P. 130, R. 22. The highest temperature was 103 and the lowest 97. Pulse 100, 140, 160, and respiration 18 to 50.

SUMMARY.

A rapidly growing mixed-cell sarcoma in a child of 14 years, of seven weeks' history. (It was denied by the mother that any trouble existed prior to the tooth extraction.) Absence of pain, although the growth involved the antrum. Metastasis to lung, liver, and spleen. Terminal hemorrhage only.

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RELATION OF FAULTY CULTURES TO DIPHTHERIA MORTALITY.

BY EDWARD SCOTT O'KEEFE, M.D., BOSTON.

Physician of the Children's Medical Out-Patient Department of the Massachusetts General Hospital.

IMMEDIATELY following the common use of diphtheria antitoxin, and after the more general use of bacteriological diagnosis, the mortality curve of diphtheria took a marked downward trend. As the value of antitoxin became more widely recognized by the profession and the public, this curve went lower still. Carey¹ states that, in the first decade of the last twenty years, the death rate of this disease fell from 43 per 100,000 to 15 and a fraction. He goes on to state that there has, however, been a fairly constant mortality rate during the latter ten years of this twenty-year period. With the advent of toxin-antitoxin administration it is not unreasonable to expect, in the near future, still further lowering of the diphtheria death rate.

In analyses of series of fatal cases, various writers have ascribed the unfavorable outcome of the disease to several factors. Among the commoner causes assigned are: (a) delay in sending for a physician; (b) inadequate dosage of antitoxin; (c) failure on the part of the physician to recognize the condition.

Failure to send for the physician within a reasonable time is a matter which can be remedied only by education and by publicity campaigns of the various public health agencies.

Inadequate dosage of antitoxin seems inexcusable considering the harmlessness of large doses of this therapeutic agent. This is a mistake which, I feel, is confined to a small group of the profession who have not kept in touch with current medical progress.

Emphasis has been laid by many upon these two sources of failure in the treatment of diph-

theria. The third factor in diphtheria mortality, *viz.*, the failure of the physician to make the diagnosis within a reasonable time, has received less attention. That a correct diagnosis should not be promptly made in the great majority of cases is occasion for speculation. The failure may be due to one of two causes: there may be a failure to suspect diphtheria from the clinical manifestations of the case, or what is, I think, more common, there may be a misinterpretation of the laboratory report upon the culture submitted.

There seems to be a fairly general impression that a negative culture and true diphtheria are rare, if not incompatible. Some physicians place great reliance upon a single negative culture, even in the face of the most obvious clinical signs of diphtheria. In short, there is a lack of appreciation of the significance of negative laboratory findings.

Regarding negative cultures from diphtheria cases, Kolmer² states that twenty per cent. of the primary cultures as *ordinarily* taken, are negative in *genuine* diphtheria, whereas, subsequent cultures in these same cases, will be positive. These figures are taken, presumably, from a series sent to the laboratory by a variety of practitioners and represent the average of their work.

Why should one out of every five diphtheria cases have a negative primary culture? The explanation is simple. These cultures are negative because a fair sample of the offending organisms has not been obtained by the clinician for implantation on the culture material. The diphtheria bacilli will not be secured by careless methods of culturing the throat. Regarding the site of the bacilli in diphtheritic membranes, A. Bleyer³ says, that the presence of the organisms in, or on, or beneath the membrane appears to be largely haphazard and accidental, but as the membrane forms and destroyed cells are caught up in the exuded fibrin, these bacilli are very likely to be enmeshed, and may be sought in nests or clusters which have multiplied *in situ*, as on any suitable medium. He further states that in securing material for his examinations it was customary to scrape under the edge of the membrane, thereby breaking through the arcades of membrane by which the diphtheria patch is customarily attached to the mucosa.

In this connection, I think, it is a not uncommon idea that if the swab is rubbed on the surface of the membrane the organism will be obtained. That the organism can be consistently found only within the membrane itself is a fact not generally recognized. To penetrate the substance of the membrane the swab may be introduced under the edge of the membrane, as indicated in the above quotation.

That there is a definite personal equation in

the procedure of culture taking is well shown in the records of any laboratory receiving specimens from a large group of practitioners.

CONCLUSIONS.

One of the factors in delay of diagnosis of diphtheria is the failure to recognize that, unless cultures are properly taken, laboratory diagnosis will not be reliable.

No amount of care or skill on the part of the bacteriologist can compensate for faulty technique on the part of the practitioner in securing a fair sample of the organisms existing in the membrane or exudate concerned.

Twenty-four to forty-eight hours' delay in the administration of antitoxin frequently results, owing to reliance placed upon faultily taken cultures.

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AUTOGRAFTING OF THE OVARY.

BY JOSEPH H. MEZER, M.D., BOSTON,

Senior House Officer, Carney Hospital.

[From the Service of F. W. Johnson, M.D., Carney Hospital.]

In young women, after removal of the ovaries, nervous symptoms are apt to be severe and persist for a very long time.

Autografting will in a very large percentage of these cases entirely ward off these nervous symptoms or modify them to a great extent. If the ovary, where the tubes have been removed, is wholly or in part left with its normal supports, grafted into the uterus, buried in the broad ligaments or underneath the parietal peritoneum, patients often complain of pain, or changes may take place in the graft, requiring a secondary operation.

When the ovary in whole or in part is buried under the skin just within the anterior superior spine of the ileum, as was done in the following case and in several others, it is where it can be easily observed and within easy reach should any disturbance occur.

After removing the ovaries they are put in warm normal salt solution until the abdominal operation is completed and the incision closed.

Then as much of the ovary as looks normal and is wanted can be placed under the skin just inside the anterior superior spinous process of either ileum.

After transplantation, where the uterus is left, the ovary remains unchanged from four to six months. During this time the patient has the symptoms of the menopause.

After a while it becomes active, somewhat enlarged and painful. The symptoms of the menopause subside and menstruation reappears.

Menstruation is always irregular. Often,

without knowing it, a small piece of ovary is left within the abdomen, but if menstruation occurs as a result of this it will appear within two months after the operation, too short a time to be from a graft.

If menstruation does not appear, symptoms of the menopause occur, showing, as has been pointed out, that it is *suppression of menstruation* which causes the symptoms of the change of life.

January, 1922. Has menstruated four times in past fourteen months. First menstruation appeared four months after the autografting. The first three times the flow lasted four to five days. No pain. The last time the flow lasted twelve days. Each time just before menstruation occurred there was swelling and tenderness where the piece of ovary had been buried. During the four months following the operation and up to the time of the first menstruation, she was troubled greatly by "hot flashes and sweating." Menstruation wholly relieved these nervous symptoms.

Case No. 3810. Age 21. White. Was admitted to the Carney Hospital on the Gynecological Service October 11th, 1920. Her chief complaint was menorrhagia and metrorrhagia with sharp pains in left ovarian region. Family history is negative except that her mother died from shock.

Past History: Appendectomy and tonsillectomy were done seven years ago, otherwise negative.

Catamenia: Menstruation commenced at the age of thirteen. Always regular every five weeks, lasting seven days, very painful in character and with a profuse flow. Last regular period July 16, 1920. Previous period June 24, 1920. Severe dysmenorrhea during first two or three days of the flow.

Marital History: Married three years. One child living and well, two years old. Instrumental delivery. Normal puerperium. No miscarriages.

Present Illness: Patient states that her period in August came one week late, lasted a week, then stopped for four days, then started again and continued to flow for a few days. Her period in September was a few days late and she has flowed profusely for the past three weeks. Complaints of a sharp intermittent pain in the left lower quadrant. This pain has been present for the past six months. This pain has been present almost continually for the past three weeks and became so severe of late that she was obliged to give up her housework. There is also a profuse bloody vaginal discharge. No dysuria, nocturia or frequency. Appetite is fair. Bowels are irregular. Suffers from headache frequently.

Physical examination: Patient is well developed and well nourished. Pupils are equal and

react readily to light and distance. Conjunctivae are clear. No glandular enlargement or adenopathies. No rigidity of neck. No opisthotonus. Throat is negative. Tongue protrudes in median line, is clean and moist with no tremor. Thorax of equal symmetry and expansion. Lungs: Percussion note is good and no râles heard. Vocal and tactile fremitus is normal. Spoken and whispered voice sounds are normal. Heart: Apex beat is palpable in fifth interspace, no murmurs heard, and sounds are of good quality and rhythm. Abdomen: Lax. There is a moderate amount of tenderness on pressure over the sigmoid. Percussion note there is tympanitic. No spasm or rigidity. Kidneys, liver and spleen are not palpable. Extremities are normal. Knee jerks are present and equal. No Babinski; or Kernig sign. Skin is clear. Blood Pressure: 130-78. Urine examination (necatheter specimen): Reaction acid. Specific gravity 1015. Albumin: Large trace. No sugar. Color, bloody. Sediment shows a large amount of fresh blood, few pus cells, a number of calcium oxalate crystals and a few squamous epithelium cells.

Vaginal Examination: A mass on left side of the pelvis. Uterus freely movable.

Rectal Examination: A cystic ovary is palpable on the left side.

October 15, 1920. Operation.

Gas Ether Anesthesia.

The cervix was dilated and the uterine cavity thoroughly everted but very little hyperplastic tissue obtained. A right rectus abdominal incision was made and peritoneal cavity opened.

The right fallopian tube was found adherent to the posterior surface of the broad ligament. This tube on palpation presented hard calcareous-like deposits near its uterine end. The left tube was adherent to the posterior surface of the broad ligament. Both ovaries were cystic. Left one contained a small rim of healthy ovarian tissue.

Double salpingo-oöphorectomy was done. No stones were felt in gall-bladder. Right kidney small and very movable. Left kidney small and quite movable. No adhesions underneath appendix scar. Abdomen closed in four layers. The rim of healthy tissue of the left ovary was transplanted under the skin just inside of the anterior superior spine of the right ileum.

Post-operative Diagnosis: Chronic salpingitis; cystic ovary.

Pathological Report: F. H. Mallory, Pathologist. Chronic salpingitis; simple cyst of ovary.

Patient made a good ether recovery and an uneventful convalescence.

Discharge Note: Uterus is in good position, no sensitiveness anywhere in pelvis. Abdominal incision well healed. No areas of tenderness or induration.

LEGISLATIVE MATTERS.

THE following bills have been introduced: House, No. 1577, substituted by the House for House, No. 1554. April 17. Resolve providing for a Special Commission to investigate and report upon the Need of Financial or Other Aid to Physically Handicapped Citizens.

Resolved, That a special commission is hereby established, to consist of the commissioner of public welfare, the chairman of the industrial accident board, the director of the commission for the blind, and the director of vocational education, to investigate and report to the general court, not later than the second Wednesday in January next, the result of its investigations, together with such recommendations for legislation upon the subject matter contained in house documents three hundred and sixty-nine and three hundred and seventy of the current year as may be advisable.

The commission shall consider and report in particular a definition for "physically handicapped citizens" to include only such citizens who have been seriously maimed or are crippled, congenitally or otherwise, to such an extent as to be definitely handicapped in obtaining employment, and as to the number of citizens in the commonwealth coming within such definition, and their need for financial aid.

Reported by the Committee on Public Health. Senate No. 427. An Act providing that the Department of Mental Diseases shall hereafter be known as the Department of Mental Health, and relative to its Powers and Duties.

Section 1. The department of mental diseases shall hereafter be known as the department of mental health and the commissioner of mental diseases and the associate commissioners of mental diseases shall hereafter be respectively known as the commissioner of mental health and associate commissioners of mental health.

Section 2. Chapter nineteen of the General Laws is hereby amended by striking out the word "diseases" in the title of said chapter and inserting in place thereof the word "health."

Section 3. Section one of said chapter nineteen is hereby amended by striking out the word "diseases" in the first and second lines and inserting in place thereof, in each case, the word:—health,—so as to read as follows:—*Section 1.* There shall be a department of mental health, consisting of the commissioner of mental health and four associate commissioners. The commissioner and at least two associate commissioners shall be physicians and experts in the care and treatment of the insane.

Section 4. Section one of chapter one hundred and twenty-three of the General Laws is hereby amended by striking out the word "dis-

eases" in the third and fourth lines and inserting in place thereof in each case the word:—health,—so as to read as follows:—*Section 1.* The following words as used in this chapter, unless the context otherwise requires, shall have the following meanings:

"Commissioner", commissioner of mental health.

"Department", department of mental health.

"Institution", hospital or other institution, public or private, under the general supervision of the department.

"Judge", judge or justice.

"Residence", residence or place where found.

"State hospital", state hospital, state school, state colony or other state institution under the control of the department.

"State", state, territory, or dependency of the United States.

Section 5. Chapter one hundred and twenty-three of the General Laws is hereby amended by inserting after section three the following new section:—*Section 3A.* The department shall take cognizance of all matters affecting the mental health of the citizens of the commonwealth, and shall make investigations and inquiries relative to all causes and conditions that tend to jeopardize said health, and the courses of mental disease, feeble-mindedness and epilepsy, and the effects of employments, conditions and circumstances on mental health, including the effect thereon of the use of drugs, liquors and stimulants. It shall collect and disseminate such information relating thereto as it considers proper for diffusion among the people, and shall define what physical ailments, habits and conditions surrounding employment are to be deemed dangerous to mental health.

Section 6. Chapter nineteen of the General Laws is hereby amended by inserting after section four the following new section:—*Section 4A.* There shall be in the department a division of mental hygiene. The commissioner may assign to said division such of the powers and duties of the department as he may determine and may employ such expert assistance for service therein as the Governor and Council may approve. He may, with like approval, designate a member of his official staff to serve as director of said division.

Reported by the Committee on Public Health. Senate No. 429. An Act establishing the Division of Mental Hygiene in the Department of Mental Diseases.

Section 1. Chapter nineteen of the General Laws is hereby amended by inserting after section four the following new section:—*Section 4A.* There shall be in the department a division of mental hygiene, under the supervision of a director. The commissioner, with the approval of the Governor and Council, may em-

ploy such expert assistance to serve in said division as may be necessary.

Section 2. Chapter one hundred and twenty-three of the General Laws is hereby amended by inserting after section thirteen the following new section:—*Section 13A.* Such of the powers and duties conferred or imposed upon the department by section three A and sections eleven, twelve, and thirteen, may be performed by the division of mental hygiene as the commissioner may determine. In addition to said powers and duties, said division shall institute inquiries and investigations for the purpose of ascertaining the causes of mental disease, including epilepsy and feeble-mindedness, with a view to its prevention. It may also establish, foster and develop out-patient clinics.

Section 3. For the purpose of carrying out the provisions of this act, there may be expended during the current year such sums as the general court may appropriate.

Reported by the Committee on Public Health. Senate No. 428. An Act reading as follows: Chapter one hundred and twenty-three of the General Laws is hereby amended by inserting after section ninety-nine the following new section:—*Section 99A.* Before trial of a child between seven and seventeen years of age in a district court or before a trial justice on a complaint that he is a delinquent or wayward child or for a criminal offense, he shall be examined by a psychiatrist to be designated by the department for such service in every such court and before every such justice. A report of such examination shall be submitted forthwith to the court of justice and a copy sent to the department. The expense of such examination and report, including the fees of the examiner, not to exceed four dollars in each case, shall be allowed and paid as in examinations conducted under section seventy-four.

Reported by the Committee on Public Health. Senate No. 426. An Act relative to the Investigation by the Department of Mental Diseases as to the Mental Condition of Certain Persons held for Trial, reading as follows:

Whenever a person is indicted by a grand jury for a capital offense or whenever a person, who is known from the court records, the records of the probation officer, or the records of the commission on probation, to have been indicted for any other offense more than once, or to have been previously convicted of a felony, is indicted by a grand jury or bound over for trial in the superior court, the clerk of the court in which the indictment is returned, or the clerk of the district court or the trial justice, as the case may be, shall give notice to the department of mental disease, and the department shall cause such person to be examined with a view to determine his mental condition and the existence of any mental disease or defect which would affect his criminal responsibility. The

department shall file a report of its investigation with the clerk of the court in which the trial is to be held, and the report shall be accessible to the court, the district attorney, and to the attorney for the accused, and shall be admissible as evidence of the mental condition of the accused.

Reported by the Committee on Ways and Means. Senate No. 1595. An Act granting the Consent of the Commonwealth to the Acquisition by the United States of Certain Land and buildings thereon situated in the Town of Rutland.

House, No. 1578. An Act Relative to the Amount to be paid for Burial Expenses in Cases under the Workmen's Compensation Laws.

Section thirty-three of chapter one hundred and fifty-two of the General Laws is hereby amended by inserting after the word "hundred", in the second line, the words:—and fifty,—so as to read as follows:—*Section 33.* In all cases the insurer shall pay the reasonable expense of burial, not exceeding one hundred and fifty dollars. If the employee leaves dependents, such sum shall be a part of the compensation payable, and shall to that extent shorten the period of payment.

House, No. 1583. An Act relative to the Payment of Workmen's Compensation in Case of Death.

Be it enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same, as follows:

Chapter one hundred and fifty-two of the General Laws is hereby amended by striking out section thirty-one and inserting in place thereof the following:—*Section 31.* If death results from the injury, the insurer shall pay the following dependents of the employee wholly dependent upon his earnings for support at the time of his injury compensation as follows:—to the widow, so long as she remains unmarried, sixteen dollars a week if and so long as there are more than two children of the employee who are under the age of eighteen, or over said age and physically or mentally incapacitated from earning, fourteen dollars a week if and so long as there are two such children, twelve dollars a week if and so long as there is one such child, and ten dollars a week if and so long as there is no such child; and, if the widow dies, to such children in equal shares, sixteen dollars a week if and so long as there are more than three such children, fourteen dollars a week if and so long as there are three such children, twelve dollars a week if and so long as there are two such children, and ten dollars a week if and so long as there is one such child; but, if such widow remarries, the aforesaid payments to her shall terminate, and the insurer shall pay each week to each of such children, if and so long

there are more than five, his or her proportionate part of sixteen dollars, and shall pay to each of such children, if and so long as there are five or less, three dollars a week. The period covered by the payments provided for by the foregoing provisions of this section shall not be longer than four hundred weeks. When weekly payments have been made to an injured employee before his death, the compensation provided by the foregoing provisions of this section shall begin from the date of the last of such payments, but shall not continue more than four hundred weeks from the date of injury.

In all other cases of total dependency, the insurer shall pay the dependents of the employee wholly dependent upon his earnings for support at the time of injury a weekly payment equal to two-thirds of his average weekly wages, but not more than ten dollars nor less than four dollars a week for a period of five hundred weeks from the date of the injury; but in no case shall the amount be more than four thousand dollars. If the employee leaves dependents only partially dependent upon his earnings for support at the time of his injury, the insurer shall pay such dependents a weekly compensation equal to the same proportion of the weekly payments for the benefit of persons wholly dependent as the amount contributed by the employee to such partial dependents bears to the annual earnings of the deceased at the time of his injury. When weekly payments have been made to an injured employee before his death, the compensation under this paragraph to dependents shall begin from the date of last of such payments, but shall not continue more than five hundred weeks from the date of the injury.

House bill 598, which provided for the limited practice of medicine by medical students, has been redrafted (House, No. 1602). It provides for registration of enrolled students in a legally chartered medical school having the power to grant degrees in medicine on payment of a fee of one dollar. Such registrant may practise under the supervision of an instructor and he may practise in a hospital of not less than 25 beds. He cannot sign death certificates, use instruments except for diagnostic purposes, nor prescribe or dispense narcotic drugs.

The Midwife Bill has been referred to the next General Court.

Fair play to the public demands a strict curb on a great mass of quackery, masquerading under the name of chiropractic. Fair play to the public would send a substantial percentage of chiropractors either to school or to jail.—*New York Evening World*.

Book Reviews.

Griffith's Pediatrics.

"The book will be found of particular value to the general practitioner, since special subjects, such as affections of the skin, the eye, and the ear, have each been touched on briefly, whilst the more common ailments and diseases are dealt with in a most comprehensive and practical manner. It is a book which we can unreservedly recommend."—*Dublin Journal of Medical Sciences*.

Diet in Health and Disease. By JULIUS FRIEDENWALD, M.D., Professor of Gastroenterology in the University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore; and John Ruhrah, M.D., Professor of Diseases of Children in the University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore. Fifth Edition re-set. Philadelphia and London: W. B. Saunders Company. 1919. Octavo. 919 pages. Cloth.

Dietetics has, as these writers properly say, been a subject much influenced by fads and fancies, and hence, the value of a proper diet has fallen into disfavor. In this book the reader finds a great deal with regard to the composition of foods, which is of much value and interest. This is built upon a scientific basis for the various diets, and is so written that the practical directions can be understood even by many laymen. The type is large, the subject well put together, all forms of diet, whether for infants or grown-up people, both in health and disease, is thoroughly explained; the question of alcohol is discussed from the scientific standpoint and in a broad and general way. This volume is much larger than the last edition, which was published some years ago, and has many new and very valuable recipes, directions, tables of chemical compositions of American food materials, full diet tables for every form of disease, and also the food values of the various articles that are commonly eaten.

This is a book that will be read with a great deal of interest by a large number of practitioners, both surgical and medical, and one in which they will find an elaboration of the whole question of diet most thoroughly carried out and explained.

A Treatise on Diseases of the Skin for Advanced Students and Practitioners. By HENRY W. STELWAGON, M.D., Ph.D. Ninth Edition, with the assistance of Henry Kennedy Gaskill, M.D.; with 401 text-illustrations and 29

colored and half-tone plates. Philadelphia and London: W. B. Saunders Company. 1921.

A ninth edition of Stelwagon's well-known work has just appeared, edited by Dr. H. K. Gaskill. Dr. Stelwagon had begun the revision of this work for its ninth edition in the spring of 1919, with the assistance of Dr. Gaskill, wishing to eliminate as much of the text as possible on account of the great size that the volume would otherwise reach from the addition of necessary new matter. Dr. Stelwagon was obliged, however, to give up the task on account of ill-health, but at his death left many notes and abstracts of various subjects which have been used by Dr. Gaskill. Although the matter of elimination desired by Dr. Stelwagon has been attended to as far as possible, the present volume contains over 1300 pages. Descriptions of several rare conditions have been incorporated—Acrodermatitis Hiemalis, Endothelioma, Keratolysis Exfoliativa, etc. Seventy-four new illustrations have been added and a few of the older ones omitted. Stelwagon's method of a careful search for references has been adhered to as far as possible.

The Intestinal Protozoa of Man. By CLIFFORD DOBELL, M.A., F.R.S., Protistologist to the Medical Research Council, National Institute for Medical Research, London, and F. W. O'CONNOR, M.R.C.S., L.R.C.P., D.T.M. & H., Wandsworth Scholar, London School of Tropical Medicine. New York: William Wood & Co. 1921.

This book offers to the protozoölogist or physician interested in the intestinal protozoa of man, clear, concise, and authoritative information. Excellent illustrations are provided. The introduction gives the important historical facts of protozoölogy. The classification and the geographical distribution of the protozoa are discussed, as well as their relation to their host. Subsequent chapters deal with the four main groups of protozoa found in the human intestine, and the concluding chapters with diagnosis, treatment, and the coprozoic protozoa of human faeces.

A carefully chosen bibliography is an important feature of the work.

The book is complete in essentials and can be recommended highly to students and physicians.

The Spleen and Some of Its Diseases. By SIR BERKELEY MOYNIHAN, 1921, 129 pages and 13 full-page diagrams. Philadelphia: W. B. Saunders Co.

This book contains the material upon which Moynihan based his Bradshaw lecture. He presents in an attractive manner a correlation of the anatomy, pathology and physiology, with the clinical and therapeutic aspects of some diseases in which the spleen is implicated. The historical accounts of splenic surgery are interestingly presented. There appear many references to investigations made in America, especially work done at the Mayo Clinic.

The volume is not a monograph, but an expansion of a timely and attractive lecture. It is not complete enough for a reference book, but is of value as a pleasing summary of some of the knowledge about the spleen and such diseases as hemolytic jaundice, pernicious anemia, Banti's disease, etc. The book contains diagrams which aim to present graphically the chief alterations which occur in splenic disease and their relationship to each other. Desirable emphasis is placed on the fact that in searching for the existence of this or that splenic disease, an inquiry should be made, directed to the determination of the functional capacity of all the various organs likely to be deranged.

A Manual of Obstetrics. By JOHN COOKE HIRST, M.D., Associate in Gynecology, University of Pennsylvania; Obstetrician and Gynecologist to the Philadelphia General Hospital. 12mo. 516 pages, 216 illustrations. Philadelphia and London: W. B. Saunders Company. 1919.

The author has taken the entire subject of Obstetrics and condensed it into a small volume. It presents, as far as possible, on the printed page, the methods of teaching which he has used with satisfaction the past twenty years. He presents the subject clearly and concisely. The methods of treatment and technic of operations advocated have been tested in his practice and have given satisfactory results. A minimum of embryology has been included. Diseases of the new-born are included only in so far as they occur during the puerperium. Chapters on lacerations of the birth canal and consequences of childbirth are very thorough. A new classification of deformities of the pelvis is presented, the classification being based on their most prominent deformity. This method has been found easier for the student to remember, and simplifies the discussion of their management. Especial care has been given to the mechanism of labor. Obstetric operations and the use of forceps are very fully considered. Indications and contraindications for operations are stated. Hemorrhage, also, is fully covered. It is an excellent manual for the student, and will enable the busy practitioner to acquaint himself quickly with the latest in obstetric work.

Gynecology. By WILLIAM P. GRAVES, M.D., Professor of Gynecology at Harvard Medical School. Second edition. Thoroughly revised. 883 pages, 490 original illustrations, 100 in colors. Philadelphia and London: W. B. Saunders Company. 1918.

This book is designed both as a textbook and general reference book. For this purpose it has been divided into three distinct parts. Part I deals with the physiology of the pelvic organs and the relationship of gynecology to the general organism. The latter subject is a comparatively new departure. This part should prove of value to both student and general practitioner. Part II includes a description of those diseases which are essentially gynecologic. Drawings of pathologic conditions are shown in reference to descriptions, which is the correct way to teach this part of the subject. Part III is devoted exclusively to the technic of gynecologic surgery. Surgical devices for the cure of gynecologic diseases are innumerable and cannot all be included in a book of this scope, but the author gives the operations which his experience has shown to be the best suited for the requirements. Many excellent procedures have been omitted. As a guide to the student, general practitioner and surgeon, this book can be confidently recommended.

Surgical Shock and the Shockless Operation Through Anoci-Association. By GEORGE W. CRILE, M.D., Professor of Surgery, School of Medicine, Western Reserve University, Cleveland; and WILLIAM LOWER, M.D., Associate Professor of Genito-Urinary Surgery, School of Medicine, Western Reserve University, Cleveland. Second Edition. Thoroughly revised and re-written. Octavo of 272 pages with 75 illustrations. Philadelphia and London: W. B. Saunders Company. 1920.

The second edition of "Anoci-Association" shows the advantage of several years of practical observation and experience in determining the reliability of the principles laid down in the first edition. The authors say: "Accumulating experience in the civilian clinic and in field and sea hospitals in France has added so much corroborative evidence of the soundness of the fundamental principles of anoci-association and its practical application, that we have ventured to re-write and augment our former volume."

A Textbook of Physiology for Students and Practitioners of Medicine. By RUSSELL BURTON-OPITZ, M.D., Ph.D., Associate Professor of Physiology, Columbia University, New York City. Octavo of 1185 pages, with 538 illustrations. Philadelphia and London: W. B. Saunders Company. 1920.

This is a splendid work on physiology, which reflects great credit on the author. As the author states, it has been his endeavor to invade the field of comparative physiology no farther than is absolutely necessary for a basis for the physiological problems of special importance to medical men. The author believes that the sole hope of modern medicine is physiology, or the experimental sciences, and as "medicine is physiology" that the student should make a conscientious effort to become thoroughly acquainted with this subject. With this object in mind, the author has given us a book which in truth presents physiology to date, made interesting and instructive throughout, and which is a perfect storehouse of invaluable information. The book is well illustrated with drawings, largely original; full of valuable tables, experiments, etc., and is without question, one of the best works on physiology ever brought to our notice.

Principles and Practices of Physical Diagnosis.

By JOHN C. DAcOSTA, JR., M.D., Ex-associate Professor of Medicine, Jefferson Medical College, and Assistant Visiting Physician, Jefferson Hospital. Fourth edition; thoroughly revised. Philadelphia and London: W. B. Saunders Co.

One of the first five books on diagnosis in English, this volume has now reached its fourth edition, and the author has taken the opportunity of having it completely revised to bring it up to date. Especially is this true of the chapters on the heart and lungs, where all the newer developments are fully touched upon. The letter-press and illustrations are all that could be desired.

A Psychiatric Milestone. Bloomingdale Hospital Centenary 1821-1921. Privately printed by the Society of the New York Hospital 1921. 220 pages.

The *Psychiatric Milestone* consists of a series of papers read at the centenary of the founding of Bloomingdale Hospital. The following contributed to the exercises, which were held at the Hospital, at White Plains, May 26, 1921:

"Historical Review," Edward W. Sheldon, Esq.

"The Contributions of Psychiatry to the Understanding of Life Problems," Adolf Meyer, M.D.

"The Importance of Psychiatry in General Medical Practice," Lewellys F. Barker, M.D.

"Greetings from the New York Academy of Medicine," George W. Stewart, M.D.

"The Biological Significance of Mental Illness," Richard G. Rows, M.D.

"The Relation of the Neuroses to the Psychoses," Pierre Janet, M.D.

The papers in general emphasize the development of psychiatry in the past hundred years.

Dr. Meyer compares "a cold dogma of blind heredity and a wholesale fatalistic asylum scheme" with the present "understanding of individual, familial, and social adjustments, and a grasp on the factors which we can consider individually and socially modifiable."

Dr. Barker shows the growth of interest taken in psychiatry, of late years, by the general practitioner and consulting internist, despite many causes which have been responsible for a former lack of interest in modern psychology. He enumerates these causes as follows:

1. Social stigma attached to mental disorders.

2. Faulty education in inculcating adequate symbols of reality.

3. Failure of many medical schools to establish psychiatric clinics.

4. Lack of understanding of the language of the psychiatrist.

5. The often misguided ardor of psychoanalysts.

6. Fear of insanity among the laity.

7. The objection of the medical practitioner to deal in what he considers the occult.

8. The rise in specialism which prevents a doctor from knowing his patients well.

Dr. Rows gives many examples showing the importance of understanding the trifling past experiences in the life of a patient which throw light on his present mental state.

Dr. Janet points out the marked division, during the nineteenth century, between the neuroses and psychoses and the present attempt to "see a common ground. The question is always an alteration in the conduct, and, above all, in the social conduct . . ."

There are several appendices giving old letters on "Pauper Lunatic Asylums," etc.

South America from a Surgeon's Point of View. By FRANKLIN H. MARTIN, C.M.G., M.D., F.A.C.S.; in collaboration with William J. Mayo, M.D., Thomas H. Watkins, M.D., and Francis P. Corrigan, M.D. Introduction by William J. Mayo, M.D., F.A.C.S. New York: Fleming H. Revell Company. 1922.

In order to bring about a closer relation between the medical professions of South and North America, efforts have been made by representatives of the American College of Surgeons to become acquainted with medical conditions in South American countries and to promote interest there in the American College of Surgeons. The report of two trips made in 1920 and 1921 to Panama, Peru, Chile, Argentina, Uruguay, Brazil, Ecuador, and Bolivia, by Dr. Franklin H. Martin, Director-General of the American College of Surgeons, has been published as a monograph in order to give our surgeons a better understanding of medical progress in the Southern Continent. The general reader will be interested in the historical facts here collected, in the geographical survey, and in the political, social, and industrial conditions described, while from the standpoint of the medical profession, the information given about the medical schools, the hospitals, and the operating surgeons of South American countries, makes the book one of particular professional interest. There are included in this work, excerpts from articles by Dr. William J. Mayo and Dr. Thomas J. Watkins, who accompanied Dr. Martin, and also a report of medical conditions by Dr. Francis P. Corrigan. The book contains an English-Spanish and English-Portuguese vocabulary, and is excellently illustrated. This volume is one of unusual interest and should succeed in its purpose of enlightening our medical profession in regard to medical conditions in South America and in stimulating interest, friendship, and coöperation between the professions of both countries.

An Introduction to the History of Medicine.

By FIELDING H. GARRISON, Lieut.-Col., Medical Corps, U. S. Army, Surgeon-General's Office, Washington, D. C. Philadelphia: W. B. Saunders Co. 1921. Octavo of 942 pages, with 257 portraits and other illustrations.

To this work by Colonel Garrison, now appearing in its third revised printing, is attributable in large measure that intensified interest in the history of medicine obtaining today in America. That interest eight years ago (before the appearance of the first edition of this "Introduction to the History of Medicine") was rather vague and scattering. Fact was it was ill-nourished—had nothing to feed on. Garrison's work "filled a gap in our literature," as Sir Clifford Allbutt pointed out in the preface to his "Greek Medicine in Rome." He has given us a polyvalent account of our profession which leaves nothing to be

desired. Dr. Garrison says that this book is a product of the Surgeon-General's library. In reality, it is the product of a full, ready quadrilateral mind, full in freightage of facts, ready in wit, and many-sided, with such supple address in the ordering of a great historic synthesis as is seldom encountered. Quite the first thing, to our mind, in the author's equipment for this task was, not his position in the National Medical Library, where he could draw upon all available medical literature of all lands, but his mighty capacity to deal with an infinitely diversified material, and deal astutely withal, in a simple manner, in a simple, yet full and flowing, Saxon speech. Two added excellences he has,—a power to evoke, in full brilliance, the massive and spiritual significance of each epochal event “in the long and broken ways of history,” and the wit to trace without tediousness the multi-form traditional continuities which knit up the story of discoveries and improvements in the circle of the sciences. Traffics, events, organic relationships—Garrison invests them all with very human charm. As for the heroes of the Apollonian art, he treats them as if they were living, breathing beings, not as so many ranks of tabled corpses. In vesture and substance, they are very real; and in the scale of merit each differing soul rises to its just degree, by grace of the author's discrimination.

It has been Dr. Garrison's aim to stress the modern period of medicine. Ancient and medieval medicine extend to somewhat over a quarter of the total content of the volume. Then come the ages of liberation and individual scientific endeavor. In these three centuries (17th-19th), the sciences were on the wing. The ordinary reader, without a particular flair for “origins,” cares relatively little for what went before—aside from the legacy of Greece. Yet if he reads, as he undoubtedly will, Chapters I-VIII, which carry him from the Stone Age to the Seventeenth Century, he is sure to bear those preceding periods in higher regard than ever before. Much new material has been added to all sections and revision has been so fundamental that it has necessitated resetting the types throughout. Should the printing of histories of medicine in the English tongue become pandemic this imperishable volume, in our opinion, could still hold its own against all rivals.

Hospital of the Protestant Episcopal Church in Philadelphia. Medical and Surgical Reports of the Episcopal Hospital. Volume V. Philadelphia: Wm. J. Dornan. 1920.

A volume of 500 pages, well printed, bound and illustrated, contains “papers based upon

the work done in the Episcopal Hospital, 1916-1920.”

“The publication of this volume has been made possible by the establishment of a Publication Fund by a generous friend of the Hospital, the late Miss Harriet Blanchard.

The cases are taken from the various Services and Departments of the Hospital, and also from the Staff of Base Hospital 34, A. E. F.

Thirty-four men contribute fifty-seven papers. Astley P. C. Ashhurst contributes twenty papers. This fact makes the inquiring reader certain that the volume will be valuable, even apart from the very excellent work of the other men.

“There is one other point to which I desire to call attention. This is the advisability of attempting to prevent perforation in suitable cases by a ‘precocious’ operation, the operation consisting in establishing a false anus above the seat of most marked intestinal lesions in the lower ileum. This is not a new proposal, and though I have not been able to persuade any of the physicians who were in charge of typhoid patients to let me attempt the operation, I am firmly convinced that it has its place.”

This quotation is an admirable indication of Dr. Ashhurst's surgical characteristics and literary power. He has done eleven operations for typhoid perforation, of which five recovered—a very excellent showing.

The book is a good example of the best type of Hospital Reports.

Pneumonia. By FREDERICK TAYLOR LORD, A.B., M.D. Cambridge, Mass.: Harvard University Press. 1922.

This little booklet of 70 pages, attractively bound and printed, is one of a series of public lectures on medical problems which during recent years have been delivered at the Harvard Medical School. In this health talk, Dr. Lord takes up the subject of pneumonia in a clear and scholarly way.

Anything dealing with a disease which, despite our best efforts, carries with it such a high mortality, is of importance. To have first-hand information given from an authoritative source so plainly and clearly as in this instance, makes this little volume of especial value.

It will prove helpful not only to the laity, but to the medical profession as well.

EXPERTS on rat extermination contend that there are as many rats in American cities as there are people. Rats impose a great economic burden and may spread serious diseases. A campaign against rats should be regularly conducted. It is estimated that it costs two dollars per annum to support a rat.

Current Literature Department.

ABSTRACTORS.

GERARDO. M. BALBONI	CHARLES H. LAWRENCE
LAURENCE D. CHAPIN	HERMAN A. OSGOOD
AUSTIN W. CHEEVER	FRANCIS W. PALFREY
ISADOR CORIAT	EDWARD H. RISLEY
ERNEST M. DALAND	WILLIAM M. SHEDDEN
RICHARD S. EUSTIS	GEORGE G. SMITH
ROBERT M. GREEN	JOHN B. SWIFT, JR.
JOHN B. HAWES, 2D	WILDER TILESTON
JOHN S. HODGSON	BRYANT D. WETHERELL
FRED S. HOPKINS	

VON RECKLINGHAUSEN'S DISEASE, OR OSTEITIS FIBROSA.

YOUNG, JAMES K., AND COOPERMAN, M. B. (*Annals of Surgery*, Feb., 1922).—These authors write as follows:

Osteitis fibrosa, under which may be included benign bone cysts, giant-cell sarcoma of the epulis type, hemorrhagic osteomyelitis and the generalized form (Von Recklinghausen's disease), is a distinct pathologic entity characterized by a fibrous metaplasia of bone.

Two types of the disease are recognized: a local and a general type. Local osteitis fibrosa and benign bone cysts are dependent upon trauma in a great majority of instances. The general form is dependent upon grave nutritional disturbances. Endocrinal glandular dysfunction, faulty calcium metabolism and chronic infection of a low grade seem to be of etiologic significance.

Cysts, osteitis fibrosa cystica and giant cells may occur in the same bone. The giant-cell content is not prognostic of malignancy.

Diagnosis of osteitis fibrosa is based upon the long duration of this process with very vague symptomatology, the frequency of spontaneous fractures and upon x-ray examination. Very often microscopic examination of pathologic sections is necessary to clear up the diagnosis.

The local form of the disease is benefited by curettage and bone transplant. The type showing multiple lesions must be given constitutional treatment directed toward the underlying constitutional disturbance. If the lesions be accessible, curettage and bone transplant may be employed. The x-ray and radium have been used in these cases with some success.

[E. H. R.]

THE RADICAL CURE OF TUBERCULOSIS OF THE SEMINAL TRACT.

YOUNG, H. H. (*Archives of Surgery*, March, 1922). writes as follows: Statistics show conclusively that in most cases of "genital tuberculosis," the primary focus is in the seminal vesicles. Tuberculosis of the seminal tract is, therefore, the better name.

From the seminal vesicles, the globus minor of the epididymis is generally next attacked. From the seminal vesicles, the prostate, urethra and bladder are often attacked later. From the seminal vesicles, more rarely, the kidney may be invaded through the lymphatics along the ureter. From the seminal vesicles by the posterior line of lymphatics, the mediastinum and the lungs may be involved.

Tuberculosis of the seminal vesicles (ampullae

and prostate, if involved) ranks first in importance when a curative operation is proposed for genital tuberculosis. Epididymectomy with injection of the vas and vesicle, as proposed by von Büniger, is preferable to simple excision, as Cunningham has shown.

Still better results may be obtained by bringing the vas permanently out of the skin in the groin for frequent injection and continuous drainage, as proposed by myself in 1901, and often employed.

But with all the non-radical procedures, a high percentage of failures—ultimate infections of remote organs, and death—result. The only hope of radical cure or complete arrestation of the disease is by the radical operation—"epididymovesiculectomy," or, better, "excision of the tuberculous seminal tract." This operation has already saved many otherwise hopeless cases.

By the technic described by myself, with the use of a long "urethral prostatic tractor," the urinary tract can be avoided, while the removal of vesicles, ampullae and prostatic lobes is facilitated.

The entire vas deferens can be removed by the to-and-fro traction described without opening the inguinal canal as previously done.

The incisions are comparatively small and the operation can be performed under procain infiltration anesthesia (1 to 400) if the lungs are involved.

The fifteen cases reported here (in seven of which the lungs were probably previously involved, and in five of which one kidney was tuberculous, etc.), of which only one patient died of tuberculosis a year later, the others being apparently completely arrested, show the effectiveness of this radical operation.

In my opinion the only justifiable operation in tuberculosis of the seminal vesicles and epididymides is a radical excision of the seminal vesicles, ampullae (and lateral lobes of prostate, if involved) through the perineal prostatectomy incision, coupled with epididymectomy and extraction of the entire vas deferens, with partial or complete castration if necessary (a rare occurrence).

The old-fashioned castration is an unnecessary mutilation and does not often cure. Radical excision of the seminal tract is the operation of choice.

[E. H. R.]

ENCEPHALITIS LETHARGICA.

This report of 20 cases by HUME, NATTRASS and SHAW (*Quarterly Journal of Medicine*, January, 1922) contains several interesting features. The onset was acute in twelve, and insidious in eight cases. Particularly interesting was the onset with neuritic pains and fever in three cases.

One of these was sent to the hospital with a diagnosis of sciatica. In all three the pains shifted from one side to the other, and involved chiefly the arms and legs. One case started with the symptoms of acute delusional insanity. Fever was present at the onset in all which began acutely, and probably also in those with gradual onset.

Eye Symptoms.—The pupils showed sluggishness or failure of reaction to light in 40 per cent. Haze of vision, due to failure of accommodation, was a common complaint. Optic neuritis was not found in any case. Diplopia and ptosis were often noted. In two cases trismus was a marked feature; in one the right side of the tongue became paralyzed.

Myoclonus was noted in 70 per cent., and involved chiefly the limbs, less often the abdominal and back muscles, and those of the face and jaw. The writers include, however, under the term myoclonus, cases in which jerky movements of the limbs resulted from

the muscular contractions, hence perhaps the very high incidence of this sign as compared with other reports in the literature.

The deep reflexes were usually normal, but in five cases there was a diminution, loss, or inequality of the knee jerks, and in one they were increased, with patellar and ankle clonus.

The authors state that the cerebrospinal fluid was usually negative, but their examinations were not very thorough: in the reviewer's experience there is usually some abnormality shown by a moderate increase in the cell count, an increase in the globulin, or a positive colloidal gold reaction.

Post-mortem examinations in the four fatal cases showed the usual findings, except that in one, a child of six years, numerous collections of polynuclear leucocytes were noted. An interesting feature was the presence of focal edema, both with and without cellular infiltration, which perhaps explains the fleeting character of many of the paralyses. [W. T.]

STREPTOCOCCAL INFECTIONS OF THE HEART.

CAREY COOMBS (*Quarterly Journal of Medicine*, January, 1922) reports the results of an exhaustive study of the hearts of persons dying of rheumatic heart disease and of ulcerative streptococcal endocarditis.

In rheumatic carditis he found the characteristic submiliary nodules of Oschoff constantly present in the acute cases, and absent in chronic cases dying of the mechanical effects of heart disease. They were consistently absent in the hearts of patients dying of other acute infections, with the exception of two cases of scarlatina, and of "certain cases" of subacute bacterial endocarditis, in which latter foci were occasionally found bearing some resemblance to the early stages of the submiliary nodule.

Similar nodules were encountered in rheumatic cases in the endocardium, and the pericardium, and in the subcutaneous tissues and joints.

Coombs describes in detail the evolution of the submiliary nodule. The situation is in the interstitial connective tissue along the course of the vessels. "First the endothelia of the smaller blood-vessels and lymphatics proliferate with more or less occlusion of the vessels and dissemination of endothelial leucocytes, mainly in perivascular foci, and building up of new capillaries. Second, the perivascular connective tissues display a fibroblastic reaction, especially around the newly formed capillaries. Third, leucocytes arrive in the disturbed area; in most areas the polynuclears are represented but sparingly, but the more severe the attack, the more likely they are to appear, and in some spots they even dominate the picture, especially where large vessels are closed by inflammatory thrombosis." The fully developed nodule shows as its characteristic feature large, dark-staining cells with many nuclei; they are believed to be endothelial in origin. The nodules heal and leave but little scar. The whole process is acute and occupies not more than two or three weeks.

The cardiac lesions in ulcerative endocarditis showed a very different distribution, the brunt of the infection falling on the endocardium, while the myocardium showed only a very few lesions, of embolic character.

Inoculation of rabbits with streptococci derived from rheumatic subjects and from the normal mouth and stool showed cardiac lesions in some of the animals. The injections were made intravenously in large doses. The outstanding feature of the carditis thus produced was widespread injury to the endocardium, with comparatively little myocardial damage. The myocardial lesions, when present, sometimes resembled the rheumatic nodule, but more often they were like the embolic lesions of ulcerative endocarditis. [W. T.]

STUDIES IN EXPERIMENTAL TRAUMATIC SHOCK.

CANNON, W. B., AND CATTELL (*Archives of Surgery*, March, 1922).—These authors discuss in detail the effects of decreased blood volume or decreased arterial pressure, the relation of reduced alkali reserve to blood pressure, the significance of the reduction of alkali reserve in shock and the experimental determination of the critical level, and the evidence of damage to the central nervous system from low blood pressure. [E. H. R.]

PAPILLOMA OF THE LARYNX IN CHILDREN.

CROWE, S. J., AND BREITSTEIN, M. L. (*Archives of Surgery*, March, 1922).—These authors make a report on this subject based upon eleven personal cases taken from the surgical clinic of the Johns Hopkins Hospital. They find that a cure may be often obtained without recourse to radical surgical operations. They believe that the external operation for papilloma of the larynx in children is never justifiable. The growth may be cured by this method, but a stenosis of the larynx results. Early tracheotomy is necessary. The growth should be removed through the mouth and under direct vision. Care must be taken not to injure the surrounding mucous membrane; even sponging with gauze in some cases may result in the spread of the growth. Actual or chemical cauterization should be avoided, as these things will not prevent recurrence, and will result in scarring or stricture. Tracheotomy removal of the growth, careful use of x-ray and radium, and above all, patience, are the essential features in the treatment of this condition. Endolaryngeal removal is the operation of choice. The authors discuss in detail tracheotomy in children, the technic of operative removal, and other methods, and give a detailed report of the treatment in their eleven cases.

This article is a valuable contribution to the subject. [E. H. R.]

VENTRICULOCORDECTOMY.

JACKSON, C. (*Archives of Surgery*, March, 1922).—Jackson says:

1. In ventriculocordecotomy I believe we have a simple endoscopic operation that can be performed under local anesthesia and that will cure almost every patient with laryngeal stenosis that is due solely to abductor paralysis, if the case is not complicated by a faulty tracheotomy.

2. Ventriculocordecotomy is indicated in cases of stenosis resulting from a hopelessly paralyzed larynx.

3. This or any other form of operative clearing of the airway is contraindicated in the first six months of abductor laryngeal paralysis. In most cases it is wise to wait a year.

4. The best means of affording relief of dyspnea and safety of the patient during this waiting period is by prompt low tracheotomy. High tracheotomy is the cause of more cases of cicatricial laryngeal stenosis than any other one thing. With a low tracheotomy, a pair of proper cannulas, and a daily toilet of the fistula, there is nothing lost by waiting.

5. Out of eighteen cases in which ventriculocordecotomy was performed, the seven that were uncomplicated by cicatricial stenosis were afforded satisfactory relief of dyspnea by this procedure alone. One required division in addition.

6. The chief functions of the larynx are phonetic, protective and expectorative. Considered in the light of the degree of preservation of these functions, ventriculocordecotomy not only surpasses any previously devised operation, but is simply ideal for those cases in which neural and muscular atrophy has rendered resumption of normal cordal mobility hopeless by either spontaneous recovery or neuroplastic surgery. [E. H. R.]

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HOSPITAL SURVEYS.

EVER since the American College of Surgeons made a survey of hospitals for the purpose of determining the standing of these institutions for its own estimate of the quality of service rendered, the advisability of a complete survey of hospitals has been discussed. The suggestion has been advanced that the public is entitled to know more about hospitals.

These institutions are important factors in the economic scheme of life. They are supported by taxation and private contributions. Dr. E. A. Codman long since called attention to the obligation of hospital authorities to analyze the work done, because the patients should be informed of its quality and the supporters should be satisfied with economy of management as well as efficiency.

The New York Academy of Medicine about a year ago arranged for a survey of the hospitals in New York City through its Public Health Committee. Considering the large amount of money (about \$351,000,000) spent each year in this city for hospitals, a survey is of great interest, especially since it has been suspected that modern business methods are not very generally employed in carrying on these institutions. Whether the support comes through taxation or benevolent contributions there should be publicity of the benefits secured.

Following the example of New York, it is probable that organizations in other states will take on this responsibility. If it is not done voluntarily the people may demand it, and if taken up by the state, the politicians may find reasonable ground for criticism, for like many forms of philanthropy, there may be question of efficiency, in the lack of comprehensive plans for coördination where they may be needed, or elimination of unwisely duplication of effort.

The study of hospital efficiency, on a financial basis only, is crude and insufficient; for, in addition to the care of patients, the usefulness of a hospital involves other important problems, such as social service, the training of nurses and the education of physicians. There are many other matters which will call for adjustment sooner or later, for the medical profession is raising questions about the constitution of the staffs of hospitals and the medical politics which are sometimes developed because of community interest by the entrenched appointees.

There will always come up for consideration questions relating to the care of chronic cases and convalescents. To the average physician the time-consuming care of lingering illness interferes with his active work and many hospitals are obliged to restrict the beds to acute cases. At some future time the public will demand adequate facilities for the care of chronic cases. Convalescent patients, too, are often left out of the hospital plan, for, after the immediate and insistent demand of acute illness has been met, it has happened many times that patients have been sent home too soon and have had to contend with the necessity of self-support long before broken health conditions could stand the strain.

Here in Massachusetts the large medical societies could best study and analyze the workings of our hospitals. The task is great and many difficulties would have to be overcome, for the problem presents many features of diplomacy as well as ability to evaluate the data secured.

Some may contend that a voluntary survey is an impertinent meddling with private affairs, but if the American College of Surgeons can undertake this work in a limited way, the Massachusetts Medical Society, in association with the Massachusetts Homeopathic Society, could do it more generally and render a great service. The mere fact that some institutions might object to an inspection would place the managers in an embarrassing position. The end would justify the means. Surveys should be made in advance of public demand.

Business is being studied from the standpoint of economy and efficiency. Hospitals are concerned with the most important phase of business, i.e., the salvaging of the human machine.

SOME DANGERS ASSOCIATED WITH MILK.

SINCE milk is universally recognized as one of the most important foods, and because there are inherent dangers connected with its production and distribution, health authorities are publishing advice relating to the possibility of dangers from the use of milk derived from a diseased cow or contaminated by handlers of the product. This advice is timely, for although the danger from the infected cow exists at all seasons, there is an added peril in warm weather from the greater liability to contamination and the more rapid development of toxins resulting from more active bacterial growth. The cow may disseminate bovine tuberculosis and streptococic sepsis. The fly may convey to the milk typhoid and other bacteria, and the handlers may spread any of the communicable diseases. Although the employment of pasteurization has been recommended for many years, comparatively few people buy milk so treated or use this method in the treatment of milk. Consumers are entitled to a wholesome product, and since many are not sufficiently well-informed to be able to pasteurize milk properly, the desirability of establishing a municipal station where this method can be used should be carefully considered.

In all probability milk producers will eventually adopt standard methods for caring for cattle so that the existence of disease will be recognized much earlier than it is at the present time and owners of cows will carefully examine them for other conditions than tuberculosis. Consumers can at least demand of owners the use of the tuberculin test. Physicians can add very much to the avoidance of milk-borne diseases by coöperation with boards of health. Veterinarians are doing excellent work in advising farmers of the dangers incident to the use of milk from unhealthy cattle, but there is lack of intensive study on the part of dairymen of the best methods of caring for the cattle and the milk.

Until the safety of the milk supply can be assured, pasteurization should be more generally employed, but dependence on this procedure should not lead to the neglect of careful examination, especially of children, at stated periods. Milk, whether pasteurized or not, may not be above suspicion from the standpoint of nutrition. The proportion of the essential elements may vary to an abnormal degree and in infants especially a milk diet may need supplementary foods. The physician is coming into more prominence as a general adviser to the family even during apparent health, but this custom should become universal. If ordinary machinery needs careful inspection to detect flaws, the human machine should be equally well studied.

In meeting a definite danger more acute in warm weather, physicians may properly be active in disseminating information in advance and be aiding health officials who are already at work.

MONTANA MATERNAL DEATHS.

THE Public Health Service has made an analysis of infant and maternal mortality in Montana. This state had the unenviable distinction of having the highest maternal death rate in the registration area. The stillbirth rate cannot be compared with many states for certificates are required of all stillborn children that have passed the fourth month of gestation.

The analysis shows that the maternal death rate for 1920 per 1000 living births is 9.9., which is slightly lower than that for 1919. The rate for the United States registration area for 1919 is 7.4. In 1919 Montana had a rate of 11.8 out of 12,017 living births, while Massachusetts had 7.1. The rate for 1920 has not been completely made up. There were 109 deaths from the puerperal state in 1920, of which 45 were caused by septicaemia, 16 by puerperal albuminuria and convulsions, and 15 by accidents of pregnancy. Some of the 16 cases of puerperal phlegmasia and embolism might be added to the 45 deaths from septicaemia. Of those persons who had been under physicians' care through the prenatal period, only 5.4 per cent. contributed to the maternal mortality, which offers a convincing argument for medical supervision during pregnancy. The comment is made that "No amount of faultless technique can repair or anticipate organic defects and damage wrought by months of neglect."

Prenatal care is becoming more general in Massachusetts and the lower maternal death rate in the states where pregnant women are carefully supervised is convincing evidence of the necessity of such practice. Montana, with its comparatively small and scattered population, would benefit by the Sheppard-Towner law at the expense of other states.

THE CREDULOUS ABERDONIANS.

CONTRARY to the long-cherished belief in the hard-headed Scotchman, it has been recently demonstrated that this nationality is as gullible as the rest of us, according to reports from Aberdeen and Orkney. It appears that an American missionary has been practicing the "laying on of hands" for the cure of disease, under the auspices of the Episcopal diocese of that section. The endorsement of the method is shown by the addition of the Episcopal

blessing. Although the percentage of cures has not been high, one thousand cases appeared on one day. The usual hysterical demonstrations were in evidence. Here is another evidence of the lack of worldly wisdom on the part of the clergy. We are accustomed to these exhibitions among our more mercurial people, but had not supposed that our Scotch relations were so simple-minded. The facts are set forth in the *Medical Press and Circular*.

HOOKWORM REMEDY FOUND IN CARBON TETRACHLORIDE.

FOLLOWING the discovery by the United States Department of Agriculture that the chemical, carbon tetrachloride, is effective against hookworms in animals, numerous trials in various parts of the world have given strong indication that it is the long-sought remedy for this parasite in human beings. This important advance adds another discovery to the list of those that Department scientists have contributed to human medicine, one of the most important of which is the fact that certain diseases may be transmitted from one animal to another by such external parasites as ticks and insects. If it comes up to expectations,—and all tests made so far have been highly encouraging—this drug will be a boon to millions of people in many parts of the world.

The Department has demonstrated beyond doubt that this chemical is a remedy for hookworm and related blood-sucking worms in animals, and its use for this purpose was first called to the attention of the medical profession in the *Journal of the American Medical Association* for November 19, 1921, by Dr. Maurice C. Hall, who made the investigations.

According to a recent article in a London medical journal, natives in the Fiji Islands have been given this treatment for hookworm with satisfactory results. Ninety-eight per cent. of the parasites were removed with one dose of carbon tetrachloride and no bad effects were noticed. The absence of harmful effects on the patients, in the tests so far, is very encouraging, as the danger attendant on the employment of the drugs most used at present constitutes a serious handicap to the work of hookworm eradication. The new treatment is, also, extremely cheap, the chemical being one that is commonly used for cleaning clothing.

At the present time the Department's discovery is being tried out as a drug for removing hookworms from people in the Southern States, on the Pacific coast, in India, Ceylon, Dutch Guiana, the Fiji Islands, and Brazil.

NEWS ITEMS.

A DEMONSTRATION clinic was held at the Beverly Hospital on April 1, 1922. Doctors were present from Beverly, Danvers, and Hamilton. The following cases were shown and discussed: fracture of fourth cervical vertebra, syringomyelia, cretinism, ankylosis of right shoulder-joint, and question of tuberculosis or infection. Dr. Burnett of Manchester and Boston gave a most interesting talk on "Intestinal Indigestion." These clinical meetings are held on the third Tuesday of each month at 4 P.M., at the Beverly Hospital.

COMPARATIVE INFANT MORTALITY RATES.—The New York City Department of Health compares the London infant mortality rate of 79 per thousand births with that of 71 for New York for 1921, and publishes the following statistics for this country:

	Reported Births.	Deaths Under 1 Year of Age.	Infant Death Rate per 1000 Births.
Los Angeles	13,655	836	66.13
New York	134,240	9,548	71.1
Cleveland	20,283	1,482	73.1
Boston	19,386	1,495	77.12
Philadelphia	43,434	3,381	77.8
Detroit	27,561	2,304	83.6
Baltimore	18,808	1,597	84.9
Pittsburgh	16,193	1,517	93.6
St. Louis*	16,050	937	61.7
Chicago*	56,543	5,071	89.68

*Not in birth registration area.

It will be noted that Los Angeles is the only one of the cities in the birth registration area showing a lower infant mortality rate than New York City.

HENRY WEKSLER of 102 Church Street, Manhattan, has been fined one hundred dollars by the Municipal Court for selling inaccurate clinical thermometers.

SUSPENDED REGISTRATION IN MEDICINE.—At a meeting of the Board of Registration in Medicine the Registration of Dr. Arthur A. Lawrence was suspended for one year, terminating April 18, 1923.

MEMBERS of the Society who may want to be affiliated with another District Society, should petition the Council according to the form below:

(Place) (Date)
To the Council of the Massachusetts Medical Society:

As my practice and professional affiliations entirely
are with the District
largely
Society, I hereby petition, according to the provisions of Chapter III, Section 3, of the

By-Laws, to have my membership changed to the above named district from the District, where I have a legal residence.

Signed

BOSTON DEATH RATE.—During the week ending April 22, 1922, the number of deaths reported was 223 against 215 last year, with a rate of 15.18. There were 32 deaths under one year of age against 30 last year.

The number of cases of principal reportable diseases were: diphtheria, 57; scarlet fever, 42; measles, 256; whooping-cough, 8; typhoid fever, 2; tuberculosis, 79.

Included in the above were the following cases of non-residents: diphtheria, 8; scarlet fever, 5; measles, 1; tuberculosis, 47. The 47 tuberculosis cases were reported by U. S. P. H. S. Hospital, Parker Hill, Boston.

Total deaths from these diseases were: diphtheria, 2; scarlet fever, 1; measles, 2; whooping-cough, 1; tuberculosis, 16.

Included in the above were the following cases of non-residents: diphtheria, 1; tuberculosis, 1.

HAMPDEN DISTRICT MEDICAL SOCIETY.—The annual meeting of the Society was held at Hotel Nonotuck, in Holyoke, on Tuesday, April 25, 1922, at 4 P.M. Dr. Henry Christian of the Peter Bent Brigham Hospital, read a paper on "Digitalis Usage." Discussion by members followed. Dinner was served at 5.45 P.M., at the expense of the Society.

The Censors will meet at Springfield Academy of Medicine, 137½ State Street, Springfield, on Thursday, May 4, at 4 P.M., for the examination of candidates for admission to the Society. HERVEY L. SMITH, *Secretary*.

THE SEMI-ANNUAL MEETING OF THE BRISTOL NORTH DISTRICT MEDICAL SOCIETY was held on April 20, 1922. The following officers were elected for the ensuing year: President, Sumner Coolidge; Vice-President, William O. Hewitt; Secretary, A. R. Crandell; Treasurer, Ralph D. Dean; Commissioner of Trials, Charles S. Holden; Censors, Harry B. Baker, T. F. Clark, A. R. Crandell, F. A. Hubbard, T. J. Robinson; Supervising Censor, F. A. Hubbard; Councillors: William A. Allen, F. A. Hubbard, Joseph B. Gerould; Nominating Councillor, F. A. Hubbard; Alternate Nominating Councillor, William A. Allen. Action was taken on the death of Dr. Joseph Battleshaw.

After lunch was served, Dr. Bartol spoke briefly on the aims of the Society. Dr. P. E. Truesdale of Fall River then gave the paper of the evening on "Uterine Fibroids."

Miscellany.

EMINENT SCIENTISTS STARVING IN RUSSIA.

PATHETIC stories of the sufferings of eminent scientists in Soviet Russia have reached the Russian academic group in the United States, whose members, including Russians who formerly taught in the universities in their native land, are now attempting to enlist the sympathy of Americans to contribute food drafts through the American Relief Administration.

Dr. Vera Danchakoff of the College of Physicians and Surgeons, Columbia University, has made public letters and other data showing the plight of internationally known Russian scientists.

Here is an abstract from a letter written by Boris Sokoloff, Professor of Biology, concerning his visit to Professor Federoff, a crystallophysicist:

"It was painful to see the sufferings of Professor Federoff. Aged, with hair all white, emaciated from starvation. I brought him a piece of bread. He bit it greedily, then all at once he stopped and said, 'You are young. You need it more than I. It is time for me to die.' His last words before his death were, 'I will soon die, and before dying I want to say to you, dear friends, dear students, more courage. Russian science is covered with wounds received during the past years, received in vain, because science was outside of politics. The wounds are deep, but not mortal. Russian science will recover from them . . . More courage. . . .'"

Here is part of a letter to Dr. Danchakoff from Professor Maximoff of the Medical Academy in Petrograd:

"With every day life becomes more intolerable. People die like flies. If not for the hope of escaping I would have committed suicide.

"Let me know whether I can count on any position anywhere in America or anywhere. It is impossible for me to leave Russia now, but I hope in time it will become easier.

"Do you know and all other civilized people in America know what is going on here? The reality excels all hearsay. We were proclaimed parasites and idlers. We were deprived even of that ration which is given to soldiers and workmen. Those of us who had in reserve clothes or other things sold them gradually, in order to continue existence. Those who had no clothes or anything else to sell, sold their books. This was pathetic."

Money for food drafts may be sent to the American Relief Administration, 42 Broadway, and should be marked, "For the educational institutions in Russia." It is promised that every institution will get its share.—N. Y. *Times*.

MEDICAL WORK IN NEAR EAST.

CHARLES V. VICKERY, Secretary of the Near East Relief, reports to Congress that 38 hospitals, besides clinics and special dispensaries, are being maintained in addition to sanitary work for refugees and emigrants in this area. There were 80,401 patients cared for, according to the last monthly report. In the Alexandropol orphanages there are more than 3,000 children suffering from trachoma.

Food, quinine and anti-smallpox vaccine, in addition to standard remedies, are urgently needed. American doctors are directing the work of native physicians. The suffering is great. The opportunity for charity is beyond ordinary comprehension. Physicians should call these facts to the attention of philanthropists.

A BOGUS CANCER CURE.

THE Department of Health of New York City reports the investigation of the claim for a cure of cancer. This preparation consisted of clay with a small amount of sulphur which was contained in a bag. The "cure" consisted in applying this compound, hot, to the affected part. Although testimony was given before a Federal judge to the effect that witnesses had been cured of cancer, registration was denied.

ANOTHER ROCKEFELLER GIFT.

It is reported that the Rockefeller Foundation has given £62,000 to endow chairs of medicine and surgery in Hong Kong University. The evidence of interest in Far Eastern medical education by this great organization is inspiring.

MEDICAL LEGISLATION IN KENTUCKY.

THE *Journal of the Kentucky Medical Association* reports that "everything the organized profession was back of, including every dollar asked for to carry on all of our health and medical activities, was passed with little opposition."

Either the profession was modest in its requests or the legislature of Kentucky has more confidence in the wisdom of the medical profession than is apparent in many other states.

It is reported that the opposition employed slanderous circular matter "mailed by the thousands," which helped rather than hindered favorable action. Kentucky and its medical profession are to be congratulated.

RESENTS CRITICISM.

DR. ALBERT ABRAMS of San Francisco has resigned from the American Medical Association and the San Francisco Medical Society because his claim for original work has been repudiated by these societies. He propounded a theory of the radioactivity of disease. If all the claimants for recognition who have been criticized should have exhibited ill temper upon learning of adverse judgment of the quality of work done, a great many good men would have gone off in a huff. Even a doctor must exhibit courage and loyalty to his convictions if he wishes to be respected.

OPPOSITION OF ANTIVACCINATIONISTS.

THE antivaccinationists, of Tacoma, recently held a mass meeting in which they protested against the appointment of Dr. Hubert Work as Postmaster General. The resolution setting forth why the doctor was not acceptable to the league was sent to President Harding and U. S. Senators.—*Northwest Medicine*.

LIST OF PUBLICATIONS ON INDUSTRIAL HYGIENE.

IN addition to the "List of Publications" issued by the International Labour Office, the Industrial Health Section intends shortly to begin issuing at regular intervals lists containing information regarding publications dealing with *Industrial Hygiene*. Although the International Labour Office cannot receive all medical and industrial periodicals, the Industrial Health Section is able to examine the most important publications dealing with industrial hygiene.

The International Labour Office therefore requests all scientists, and members of the medical profession who are interested in social and industrial medicine, to be good enough to furnish its Health Section (Industrial Health Section, International Labour Office, Geneva) with detailed bibliographical notes on their recent publications (the author's name, the title of the article and the date and number of the periodical in which it appeared); and they are also requested to forward, if possible, an offprint of such articles. In return, the International Labour Office will be pleased to supply its correspondents regularly with its bibliographical lists on Industrial Hygiene.

MASSACHUSETTS TUBERCULOSIS LEAGUE.

THE eighth annual conference of the Massachusetts Tuberculosis League began its sessions on the afternoon of April 20 with a meeting of the board of directors, President Edward O. Otis, M.D., in the chair. Two leading items of business were the election of officers for the coming year and the initiation of proceedings for incorporation of the League. The election resulted in the following list of officers:

President, Edward O. Otis, M.D., Boston; vice-president, Henry S. Dennison, Framingham; honorary vice-presidents, Eugene R. Kelley, M.D., Brookline, and Walter P. Bowers, M.D., Clinton; treasurer, Arthur Drinkwater, Cambridge; executive committee, to serve for three years, Francis A. Bagnall, Adams, and Louisa P. Loring, Beverly; to serve for one year, Arthur K. Stone, M.D., Framingham; directors at large, Mildred F. Ashley, R.N., Brookline; Henry D. Chadwick, M.D., Westfield; Merrill E. Champion, M.D., Cambridge; Mrs. Sumner Coolidge, Lakeville; Sumner H. Remick, M.D., Reading; Robert W. Kelso, Boston; Mrs. Henry C. Mason, Winchester; Gertrude Peabody, Cambridge; Francis G. Curtis, M.D., Newton; Cleveland Floyd, M.D., Boston.

The President was authorized by the meeting to appoint a committee to care for the details of incorporation, provision being made for turning over to the corporation papers and records now in the possession of the League.

The exercises on the 21st and 22nd were largely attended by representatives of local organizations throughout the State, health workers and many others interested in the subjects under discussion. Several of the papers will be published.

Charles J. Hatfield, M.D., Director of the National Tuberculosis League, gave an interesting historical account of the formation of the various societies engaged in health work and explained the coalition of the various organizations making up the National Health Council. He spoke of plans which are being studied which are designed to coördinate the activities of the various health organizations, with the hope that unnecessary duplication of effort may be eliminated.

The report of the committee on nursing education follows:

REPORT OF THE COMMITTEE ON NURSING EDUCATION.

During the summer of 1921 the following group of people met for the discussion of the possibilities of improving the tuberculosis side of nursing education in the training schools in Massachusetts. Miss Billings and Miss Gardner represented the National Organization

for Public Health Nursing, Miss Anne Strong and Miss Sally Johnson the League for Nursing Education, Dr. Merrill E. Champion, State Department of Health, Dr. Henry D. Chadwick, Tuberculosis Institutions, and Mr. Spencer the Secretary, the Massachusetts Tuberculosis League.

This committee was later recognized by the Massachusetts Tuberculosis League as its Committee on Nursing Education. Under the auspices of the committee the State League Office sent out a questionnaire to the 96 nurses' training schools of the State, asking them about their present training which they are giving in tuberculosis and preventive work and if they would be able to accept more free lecture service on tuberculosis work if it were offered and if they would be interested in sending their students for observation to tuberculosis hospitals. Seventy-six replies were received to this questionnaire, a summary of which is as follows: 34 hospitals replied that they had some form of instruction in tuberculosis nursing; 16 said this was given in general courses incidentally and the rest gave from one to 20 hours' work. Three hospitals gave a short period of practice on a tuberculosis ward. Thirty-two hospitals replied that they gave some attention to preventive work, ranging from three to 12 lectures, and 17 of the 32 said that instruction was given incidentally in connection with general courses. Fifty-two hospitals replied that they would be able to devote more time to the subject of tuberculosis if additional free lectures were offered. Eighteen hospitals said that they would be glad to send their students to tuberculosis hospitals for observation and 11 said they would attempt to do so.

Following the receipt and summary of this questionnaire another questionnaire was sent out to the 52 hospitals which had replied that they would be able to accept more free lecture service, asking them if they would take one lecture each on clinical tuberculosis, tuberculosis nursing, and a lecture on the sociological aspects of tuberculosis. To date of report 31 hospitals have applied for such service, 18 of which have asked for all three lectures. The lectures so far scheduled on clinical tuberculosis are being given by Dr. Edward O. Otis and Dr. Bradford Kent of Boston, Dr. Harry S. Wagner of Pocasset, Dr. Olin S. Pettengill of the Essex County Sanatorium, Dr. Alley of Rutland and Dr. Chadwick of Westfield; the lectures on tuberculosis nursing by Miss Bernice Billings of the Boston Association, and Miss Margaret Weir of Beverly; the lectures on the organized fight against tuberculosis, its history, aims, standards and methods of work by Mr. Spencer, outside of Cambridge, where lectures are being given by Mrs. Mabel Greeley Smith of the Cambridge Anti-Tuberculosis Association.

Correspondence.

DRIED MILK.

Mr. Editor:

In the BOSTON MEDICAL AND SURGICAL JOURNAL, on page 393 of Volume CLXXXV, under the heading "Medical Notes," there is a paragraph on the retention of water-soluble vitamins in reconstructed milk from milk powder made by the spray process, which is absolutely incorrect, and the truth is misstated in a manner which, to anyone conversant with the literature on the subject, places the JOURNAL in a position of ridicule. As this JOURNAL represents the Massachusetts Medical Society and is the oldest medical weekly journal in America, I feel sure that it is only through some gross error that such statements have been allowed to appear in it, and I trust that for its own sake the JOURNAL will see its way clear to disavow them publicly.

I have adopted as far as was possible in the above paragraph the verbiage of your courteous correspondent of the July 14, 1921, number of the JOURNAL (page 70), with the hope that as definite damnation will fall upon the head of the anonymous contributor of the paragraph on reconstructed milk, as fell on the luckless (not anonymous) writer of the article on goitre, to which your correspondent took exceptions. There are schools of embryology which do not wholly agree with your critic of July 14, but I can find in the literature no evidence which will justify the statement on reconstructed milk to which I take exception. Nor can I find that the advertising matter of the manufacturers of spray dried milk powder contains any such claim. To one who is familiar with the unwritten, and often written, law of journals, that they are in no way responsible for opinions or views expressed by contributors, it is difficult to understand how the JOURNAL would become an object of ridicule because of an error in statement made by a contributor, over his own signature. But editorial contributions, unsigned, should represent the opinions of the JOURNAL, and are in a totally different class. The character of the paragraph on reconstructed milk leads one to wonder whether it was, after all, an editorial offering. There is in its ingenuous, or, rather, ingenious construction a suggestion of advertisement. If the contribution was supplied as an advertisement, and was received and paid for as such, then is the sin even greater.

But, seriously, as one deeply interested in the subject of the concentration of milk, may I call your attention to certain advantages and disadvantages which milk powder possesses.

Yours very sincerely,

TIMOTHY LEARY.

[NOTE—Professor Leary's article appears in this issue of the JOURNAL and is a valuable contribution to the subject of dried milk.

The statement which appeared in the JOURNAL and which has roused the ire of the eminent professor was published for the reason that it sometimes happens that people travelling, or temporarily sojourning in a locality where one may not feel confident of the good quality of the available milk supply, may use reconstructed milk with comparative safety. Subsequent to the receipt of Professor Leary's criticism, an eminent pediatrician was asked his opinion of the comparative safety of milk powders in preparing food for children. He gave an opinion that so far as the milk part of the dietary is concerned there are reasons for its use and that the addition of orange juice to the child's diet would probably prevent the development of scorbutus. Permit me to suggest to Professor Leary that it is not

customary to include under the name water-soluble vitamins the anti-scorbutic vitamin C. Our statement is in entire agreement with a very large percentage of the professor's own views.

Perhaps Professor Leary will consult the book by H. C. Sherman, Professor of Food Chemistry, Columbia University, and S. L. Smith, Specialist in Biological and Food Chemistry, United States Department of Agriculture, page 14, line 25, where it is stated that "both water-soluble and fat-soluble growth producing substances are fairly soluble in alcohol, which accounts for the fact that Hopkins' alcoholic extract of dry milk contained both of these essentials." On page 183 of the same book it is stated that "Dried milk has repeatedly been used in different laboratories as the sole source of vitamin A with success." On page 213 it is stated that dried milk is an excellent source of vitamin A, a good source of vitamin B, and a variable source of vitamin C.

There is abundant evidence brought out in this book that dried milk may be used to advantage as a food. Professor Leary may claim that roll dried milk is safer and better than the spray dried product. He may be right, but it is a fine distinction.

McClendon and Bowers in an article published in Minnesota Medicine, Volume V, No. 4, speak definitely of the useful qualities of milk powders, although emphasis is given to the contention that the majority of milk powders are very poor in vitamin C if not supplemented by anti-scorbutic additions. Scurvy does not follow the use of dried milk powders immediately, but contaminated milk may produce serious conditions very quickly. Hence, one may reasonably contend that when in doubt about the quality of milk, dried milk powders as a basis for reconstructed milk may offer a comparatively safe resource for a time.

The JOURNAL is certainly grateful for evidence of the interest shown by Dr. Leary, even though his language lacks some of the finer qualities of courtesy. For the benefit of Dr. Leary and any others who may suspect the JOURNAL of lending its columns to an advertising propaganda, it may be stated that no one connected with the JOURNAL has any interest, direct or indirect, in any food product, or, indeed, in anything ever advertised.—Editor.]

OBJECTION TO INTERPRETATION OF
DR. COPELAND'S STATEMENT.

New York, April 19, 1922.

Mr. Editor:

In your issue of Thursday, April 6, 1922, you comment, editorially, on Commissioner Royal S. Copeland's remarks made in an after-dinner address at the Rotary Club of this city. There seems to have been not a little misunderstanding of the Commissioner's statements. The point he made was that the medical profession still clung to its old policy of secrecy and scientific aloofness and failed to inform the general public of the progress that has been made and is being made in the prevention and cure of disease, and that consequently a great many persons died each year whose lives could have been saved had they been informed in time of what could have been done for them, and had they availed themselves of this knowledge. The other point the Commissioner made was that, because of this adherence to antiquated ethical standards which kept from the public legitimate knowledge of preventive and curative surgery and medicine, quacks, charlatans and irregular practitioners were able to mislead the public with their fraudulent claims.

Dr. Copeland had no intention of advocating that individual physicians advertise either through free or paid publicity. What he did advocate was that the medical profession, as a whole, should give the public the benefit of its knowledge through properly organized publicity.

His comments were not in the form of "adverse comment" or of "bitter criticism." On the contrary, the suggestions contained in his address were intended to be helpful and constructive.

The publicity recently given Dr. Lorenz caused thousands and thousands of cripples in this city to apply for treatment. A very large percentage of these it was found possible to materially help. We are all familiar with the wonderful results that were obtained through the recent publicity campaign conducted against venereal disease and the advertising G. U. specialists. How many other examples might be cited of the good results of public health advertising!

You state: "If Dr. Copeland believes his own statements, he is not informed concerning the efforts which are made in Boston to enlighten the public by means of public lectures on medical subjects and the dissemination of literature among the laity relating to cancer, tuberculosis, diphtheria and other important diseases."

Dr. Copeland most assuredly believes his own statements, and, what is more important, he has the courage to practice what he preaches, and is continually giving to the lay press information which he believes will be helpful to the public. The Department of Health of New York City has, like that of Boston, endeavored to enlighten the public by means of lectures, monographs, etc. Dr. Copeland believes that while these methods serve a very useful purpose they do not reach all the public, most of whom, if indeed not all, can be reached through the newspapers. He further believes that it is important to present his facts in the lay press because it is in the advertising columns of the lay press that the quack exploits himself. Compare the space given to legitimate information on medical matters in the daily press with the paid advertising space used by charlatans and patent medicine vendors. Is it not about 100 to 1 in favor of the latter?

You state in the concluding paragraph of your editorial: "It is possible that the reporter did not give Dr. Copeland's views correctly."

You probably know from experience that the lay press is not always accurate in reporting the remarks of a public officer. There is always a tendency to exaggerate in order to make the article more interesting, but while the report you read may have been an exaggeration of what Dr. Copeland said, the fact remains that if even our present knowledge of medicine were widely disseminated thousands and thousands of lives could be saved annually. Diphtheria is now preventable and curable also, if diagnosed and treated promptly. Typhoid fever is an absolutely preventable disease. Syphilis is preventable and now also curable. Still thousands die yearly from these diseases and from other diseases that are just as preventable and just as curable. It is this point that Dr. Copeland sought to emphasize.

I feel that the matter under discussion is of sufficient importance to warrant me in correcting the opinion which you seem to have formed. Dr. Copeland is too interested in furthering the splendid work that the profession has done and is doing to allow the erroneous impression that he had spoken disparagingly of the profession to go uncorrected, and I am sure that he will, therefore, be glad to have you publish this letter *in toto*, or to quote from it, or comment upon it editorially, as you see fit.

Very truly yours,

S. DANA HUBBARD, M.D.

[NOTE:—The JOURNAL felt that the sweeping criticism of Dr. Copeland, if correctly reported, was unjust and unfair to the medical profession, and now takes equal exception to the statement in this communication of Dr. Hubbard, in which the following language appears: "The point he made was that the medical profession still clung to its old policy of secrecy and scientific aloofness and failed to inform the general public of the progress that has been made and is being made in the prevention and cure of disease." Whether this statement applies to the profession in all parts of the country or not Dr. Copeland should have known before making any statement which could have been so construed even by Dr. Hubbard.

In refutation of such expressions one may point to the publicity work of the cancer societies, the tuberculosis associations, the publications of the Metropolitan Life Insurance Company. The various state and city health departments all over the country, the public exercises conducted by the American College of Surgeons and the medical lectures here in Boston, especially adapted to lay comprehension and which are reported in the daily press. Aside from all these activities were not the millions of men in service in the Great War, as well as those in associated activities, given direct information relating to venereal diseases and demonstrations of preventive medicine in the measures employed to prevent and control typhoid fever, smallpox, typhus fever and other communicable diseases? That publicity has not been general enough is conceded, but a reasonable degree of effort made by the medical profession and allied health agencies to spread information which can be assimilated and applied by the laity is in evidence.

The medical profession does not cling to the old policy of secrecy and scientific aloofness. If there are any members of the profession who are guilty of this purpose they do not represent the profession.—*Editor.*]

HOLDEN DISTRICT HOSPITAL, INC.

Replying to your letter of April 17, asking particulars about the new hospital in Holden, will say that the work of construction of the building has begun and it is expected it will be ready for occupancy early in September. The site is a plateau overlooking the central village of the town, on a lot consisting of nine acres, contributed for the purpose by Mr. Bertram S. Newell. The contract calls for a brick-over-tile structure which shall accommodate 25 patients, and provision is made for nurses' quarters, pathological and x-ray laboratories, an operating suite, etc. General medical, surgical and obstetrical cases will be taken: The completed cost of the building, it is estimated, will be about \$45,000. It is not possible at this time to estimate just what the expense of furniture and equipment will be, for many have signified an intention of furnishing rooms and wards and the cost will vary somewhat with the wishes of the donors. Most of the appliances in the present building will be moved to the new quarters when completed.

Although the corporation was formed three years ago under the name of Holden Hospital, Inc., in order to conform to the wishes of some of the people in the adjoining towns and to indicate more appropriately the community served, it was recently voted to change the name to Holden District Hospital, Inc.

On completion of the new structure, the funds will have been contributed by people of Holden, Rutland, Princeton and Oakham, though up to very re-

cently the hospital has been supported largely by the Holden people exclusively. Likewise in the future the other towns will partake in its management and maintenance.

By the will of the late Mrs. Anna E. Forbush the hospital receives about \$5000, to be applied to the maintenance fund.

Very truly yours,

FRANK H. WASHBURN.

A PARODY.

Mr. Editor:

The circular of Dr. Gregory which called forth your editorial entitled "An Appeal of a Quack to Possible Quacks" had on its first page the well-known stanzas:

Careless seems the great avenger.
History's pages e'er review
That death struggles in the darkness
Twixt old systems and the new.
Truth forever on the scaffold,
Wrong forever on the throne,
Yet that scaffold rules the future
And behind the deep unknown
Standeth God within the shadow,
Keeping watch above his own.

My copy, which came to me from a rural section of Boston, had as a continuation of the above:

Come and join the drugless healer,
Gregory of matchless fame,
Starting heart's suspended function¹
Into active work again.

Throw away your old diplomas,
Though our Gregory has three,²
Combined drugless methods do it
If the spine adjusted be.

It is well that God is watching
What we mortals do below,
For the fools are sure to follow
Where the chiropractors go.

¹ "Dr. Gregory teaches how to restore the heart to action after it has stopped by the use of different methods which will not fail if any reflex response can be aroused, and thus enables you to save life in many cases."

² "M.D., D.C., D.S."

SAMUEL B. WOODWARD.

PANCREATIC EXTRACTS FOR THE TREATMENT OF DIABETES.

April 27, 1922.

Mr. Editor:

A good many persons have asked me about the experiments recently conducted in Toronto with pancreatic extracts for the treatment of diabetes. Last December I went to New Haven on purpose to hear the subject presented by Dr. Banting and Dr. Best and was not disappointed. Their investigations appear to have overcome the difficulties of earlier experimenters in that they have secured an extract of the internal secretion of the gland which has escaped injury from the powerful and abundant external digestive secretion. Their ingenious method was to ligate the pancreatic duct, and in accordance with experiments long known, after 7-10 weeks the gland tissue atrophied, but the Islands of Langerhans were largely preserved. Working with such an atrophied gland obtained from dogs, the extract was obtained and later an equally good extract was also obtained from the fetal pancreatic gland of calves, due in this latter case to the non-proteolytic action of such a gland. By injecting these extracts intravenously or subcutaneously into dogs, made artificially diabetic, they noted that the

urinary sugar, the blood sugar, and the acidosis decreased while the respiratory quotient rose more than is usual in diabetes and the clinical condition of the animals improved. In December they reported that dogs so treated lived six weeks, but I note in their article published in the March number of the *Canadian Medical Association Journal* at Toronto, the lives of such dogs had been preserved for seventy days. At the meeting Dr. Allen stated that the limit of life of such dogs, in his experiments, was fourteen days.

In the article above referred to they also report results with seven diabetic patients. In these cases favorable effects were also achieved. On the other hand, the injections yield only temporary results and severe toxic reactions may be encountered, so that as yet the method is not applicable to general use. The significance of the experiments for diabetic therapy is, however, unquestioned, because these offer a lead for future exploration which previously did not exist. The treatment of diabetes in a manner similar to myxedema does not now seem to be so remote. That the heads of the Departments of Physiology, Pharmacology, Hygiene, and Medicine in the Toronto Medical School, are all coöperating in this research shows how seriously and energetically it is being conducted. Further reports are promised at the meeting of the Congress of American Physicians and Surgeons, in Washington, the first week of May.

Very truly yours,

ELLIOTT P. JOSLIN.

CONGRES DES DERMATOLOGISTES ET SYPHILIGRAPHES.

A Congress of Dermatologists and Syphilologists, conducted in French, will take place in Paris on June 6th, 7th, and 8th, 1922, under the patronage of the Société Française de Dermatol. & Syphiligraphs.

Those eligible to regular membership in the Congress are: (a) Members of National Societies of Derm. & Syph.; (b) Doctors interested in Derm. & Syph.

Subscription to the Congress will be sixty francs.

The meeting will be held at the St. Louis Hospital at 9 A.M. and 2 P.M. At the morning meetings patients will be shown and special papers will be read. The afternoon sessions will be given to the discussion of the following papers:

1. Epidermomycoses (excluding ringworm of the scalp). M. le Dr. Petges (Bordeaux).
2. Subacute Inguinal Lymphogranuloma of Venereal Origin. M. le Prof. J. Nicolas et M. le Dr. Favre (Lyons).
3. Colloidales reactions in venous syphilis. Reactions to Colloidal Gold, to Gum Mastic, to Colloidal Benzoin. M. le Dr. Guy Laroche.

For the Committee,

HUDELO.

Communications and subscriptions to the Congress should be sent before May 15th, 1922, to M. le Dr. Hudelo, 8 rue d'Alger, Paris. Titles of papers, accompanied by a short résumé, should be sent to M. le Dr. Hudelo before May 1st.

NOTICES.

CENSORS' MEETING.—The Censors of the Suffolk District Medical Society will meet for the examination of candidates at the Medical Library, No. 8 The Fenway, Thursday, May 4, 1922, at 4 o'clock. Candidates should make personal application to the Secretary, and present their medical diploma at least one week before the examination. Richard H. Miller, Secretary, 402 Marlborough St., Boston.

NORFOLK DISTRICT MEDICAL SOCIETY.—The seventy-second annual meeting will be held at the American House, Boston, Tuesday, May 9, 1922, at 5 o'clock, sharp. Order of exercises: Minutes of previous meeting, reports of committees, report of treasurer, election of officers, incidental business. Dinner at 6 o'clock, sharp. Seats have been engaged for the evening performance at B. F. Keith's theatre. The tickets are for reserved seats in the orchestra and will be distributed during the dinner that members sitting together may be able to do so at the theatre as well. All who expect to attend the dinner are urged to notify the Secretary. An assessment of two dollars and fifty cents will be made for the dinner and theatre.

C. D. KNOWLTON, *President*.
BRADFORD KENT, *Secretary*.

List of nominations, Norfolk District Medical Society, for 1922-1923:

President, Dr. William J. Walton, Dorchester.
Vice-President, Dr. William H. Howell, Roslindale.

Secretary, Dr. Bradford Kent, Dorchester.
Treasurer, Dr. G. W. Kaan, Brookline.
Commissioner of Trials, Dr. M. V. Pierce, Milton.
Nominating Councillor, Dr. D. N. Blakely, Brookline; Dr. D. G. Eldredge (Alternate), Dorchester.
Censors: Dr. C. F. Stack, Supervisor, Hyde Park; Dr. E. T. Rollins, Jamaica Plain; Dr. T. J. Murphy, Roxbury; Dr. G. G. Bulfinch, Brookline; Dr. A. A. MacDonald, Dorchester.

Councillors: Dr. C. E. Allard, Dorchester; Dr. W. B. Batchelder, Dorchester; Dr. E. H. Baxter, Hyde Park; Dr. D. N. Blakely, Brookline; Dr. J. P. Broderick, Jamaica Plain; Dr. A. N. Broughton, Jamaica Plain; Dr. J. A. Ceconi, Dorchester; Dr. D. G. Eldridge, Dorchester; Dr. T. F. Greene, Roxbury; Dr. W. H. Greene, Roxbury; Dr. W. A. Griffin, Sharon; Dr. R. W. Hastings, Brookline; Dr. F. C. Jillson, Jamaica Plain; Dr. G. W. Kaan, Brookline; Dr. W. B. Keeler, Roxbury; Dr. Bradford Kent, Dorchester; Dr. M. V. Pierce, Milton; Dr. H. H. Power, Brookline; Dr. Victor Safford, Jamaica Plain; Dr. G. H. Scott, Roxbury; Dr. C. F. Stack, Hyde Park; Dr. Max Sturnick, Roxbury; Dr. Augusta Williams, Brookline; Dr. G. W. Winchester, Mattapan.

GEORGE H. FRANCIS,
Chairman Nominating Committee.

NEW ENGLAND PEDIATRIC SOCIETY—The 75th meeting will be held at the Boston Medical Library on Friday, May 12, 1922, at 8:15 P. M.

The following papers will be read:

Acidosis, Oscar M. Schloss, M.D., Boston.

The Use of Convalescent Serum in the Treatment of Scarlet Fever, Edwin H. Place, M.D., Boston.

Mothers with Positive Wassermann Reactions, and their Children, David L. Belding, M.D., Boston.

Light refreshments will be served after the meeting.

RICHARD M. SMITH, M.D., *President*.
LEWIS W. HILL, M.D., *Secretary*.

HAMPDEN DISTRICT MEDICAL SOCIETY.—At the annual meeting at Hotel Nonotuck, Holyoke, on Tuesday, April 25, 1922, it was voted to hold the next meeting of the Society at the Holyoke Canoe Club in July, and to invite Hampshire District to meet with Hampden.

The following officers were elected: President, Morgan B. Hodskins of Monson; Vice-President, Richard S. Benner of Springfield; Secretary and Treasurer, Hervey L. Smith of Springfield; Committee of trials, Frederick B. Sweet of Springfield; Censors, A. C. Eastman of Springfield, supervising censor, F. L. Everett of Springfield, Geo. D. Hen-

derson and J. J. Carroll of Holyoke, F. T. Clark of Westfield; Councillors, E. P. Bagg, Jr., of Holyoke; Nom. Councillor, E. A. Knowlton of Holyoke; Alternate, Philip Kilroy; A. C. Eastman, A. G. Rice, F. F. Dexter, E. C. Dubois and D. E. Harriman of Springfield, J. P. Schneider of Palmer, M. B. Hodskins of Monson, J. J. McCabe, G. L. Gabler, and Jean H. Celce of Holyoke, Geo. H. Janes of Westfield, and J. H. C. Gallagher of Chicopee. H. L. Smith, Secretary.

WORCESTER NORTH DISTRICT MEDICAL SOCIETY.—The officers elected at the annual meeting were as follows: President, Lewis F. Baker, Fitchburg; Vice-President, Francis M. McMurray, Fitchburg; Secretary, Curtis H. Jennings, Fitchburg; Treasurer, Frederick H. Thompson, Jr.; Committee of Trials, C. H. Bailey, Gardner, Nom. Coun., H. R. Nye, Leominster; Alternate, J. G. Henry, Winchendon. Councillors, W. E. Currier, Leominster; J. G. Henry, Winchendon; H. R. Nye, Leominster; A. H. Quessy, Fitchburg. Censors, A. H. Quessy, Fitchburg, Super., G. P. Norton, Fitchburg; C. G. Brigham, Leominster; C. E. Woods, Lunenburg; T. B. Donovan, Fitchburg.

MARION ELEANOR LEEPER, M.D.

Dr. Marion E. Leeper, a member of the Massachusetts Medical Society and a prominent practitioner of Northampton, died at Springfield, April 20, 1922, following an operation on the gall-bladder, at the age of 40.

Dr. Leeper was a native of Cleveland, Ohio, a graduate of Oberlin College in the class of 1904, and of the medical department of the University of Michigan in 1907. She served at the dispensary of the New England Hospital for Women and Children in Boston for a time and settled in Poughkeepsie, at Vassar College. In 1912 she moved to Northampton, where she was on the faculty of Smith College, becoming at that time a member of the State Medical Society. Dr. Leeper was never married. She is survived by her father, a brother and two nieces in Cleveland, Ohio.

RECENT DEATHS.

Word has been received of the sudden death of Dr. Charles Rumford Walker of Concord, N. H., on April 22, 1922, at the age of 70. He was a graduate of Yale College in the class of 1874 and of Harvard Medical School in 1878. A prominent practitioner of Concord, he had been a member of the New Hampshire Medical Society since 1878 and for many years a member of the American Medical Association. At the time of his death Dr. Walker was president of the New Hampshire Savings Bank.

[NOTE:—The newspapers mixed this Dr. Walker with Dr. Charles S. Walker of Keene, who was president of the New Hampshire State Society in 1921.]

NOTICE! NO MAILING ADDRESS GIVEN!

A letter requesting a Point Scale (Yerkes and Rossy) and a Clinical Chart (Jellalian) was received in this office April 24. It was mailed in Worcester April 3, but was misdirected. Will the doctor who mailed the above letter please notify us and the Point Scale and Clinical Chart will be sent at once.

BOSTON MEDICAL AND SURGICAL JOURNAL.

The Boston Medical and Surgical Journal

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Original Articles.

LEGAL LIMITATIONS AND AUTHORITY OF MASSACHUSETTS LOCAL BOARDS OF HEALTH.

BY FRANCIS GEO. CURTIS, M.D., BOSTON,
Chairman, Newton Board of Health.

By Massachusetts law, great powers are given to the local boards of health; powers so great that they make the board the most powerful branch of the government of which it is a part.

The State early recognized the necessity of exercising almost autocratic powers in cases in which the health of the community was involved and, in order that the offender might be unable to invoke the traditional delay of legal procedure, gave these great powers to a body of men who should be able to act quickly and intelligently and with the authority which comes directly from the legislature. Very wisely, also, the State recognized that these powers could be exercised more intelligently by men living in the locality where they were to be exercised and thus familiar with local conditions, than they could be by a central authority, and as a result, with very few exceptions, the power of the local boards is practically paramount within their own communities.

These powers carry with them great responsibilities and also the implied understanding that the local boards shall exercise them only after due consideration.

Because the board of health exercises so many and such various functions, there are many laws defining its duties, but, with few exceptions, the chief functions of a board of health may be classed under three major headings, *viz.*, nuisances, protection of food supplies and the prevention of disease.

It is, of course, impossible in the limits of a paper of this kind to speak of all the ramifications of these great functions, and it is my purpose to refer broadly to some of the more important aspects of each and try to show what the power of a local board may be under each, and what its limitations, based upon a rather hasty perusal of the decisions of the Supreme Court, which may seem to bear upon the different functions.

It should be clearly understood, however, that the inferences drawn are those of a layman, not of a lawyer, and it is quite possible that the latter might give an entirely different opinion as to the meaning of the statement by the court, even when the meaning seems perfectly clear to the lay mind.

There are certain general principles which should always be borne in mind whenever an

important question is presented to the local board for consideration.

Because of the great powers which it exercises, a board of health should be very careful that it exercises them justly and with due consideration of the rights of all interested parties, and, for these reasons, it should always give a hearing in those cases in which no harm will come because of the delay.

There are many cases in which this delay will not be harmful to the community, and the board can proceed slowly; while in other cases, such as may occur in handling a case of disease, delay may be dangerous and the board must act in a way which may seem arbitrary.

It should always be remembered that the board is a servant of the people and acts for the benefit and protection of the public.

Three other things should be borne in mind: first, that it is always well to consult the legal advisor in important matters, where time can be spared; second, always try to put yourself in the place of the other fellow and see what he could do to the case if he should go to court, and, finally, be sure that the records covering the transactions are complete and correct.

It is a safe inference that the courts will be unwilling to upset the action of the board of health, unless the latter has glaringly gone outside of its authority and that, if the board will take pains to consider all phases of the question before acting, its action will be upheld by the courts.

In fact, there are several decisions of the Supreme Court in which, to the lay mind, it is apparent that it has been taken for granted that a board of health acted *in bona fide*, even though the record was incomplete.

Another example of the support given to boards of health by the Supreme Court is shown in a case in which it upheld the lower court in refusing to issue an injunction against a person who held a license from the local board of health to build a stable—one of the arguments being that if an injunction should be issued it would render the licensing power of the board, a power granted it by the legislature, null and void (157 Mass. 12).

Two quotations from this decision are of interest: "the act gives to the designated tribunal jurisdiction to determine finally whether the use of the property in accordance with the terms of the proposed license, would or would not make it a public or private nuisance and that the use of the building in conformity with the license granted, would not subject the owner to indictment or injunction." And the other, "if the board of health cannot finally determine it (*i.e.*, whether the use would be a nuisance), their license, when granted, is of no effect."

So much for the general power of a board of health.

The first function to be considered is that of nuisances, and here the power of the board of health is very broad.

General Laws, Chap. 111, Sect. 122, says: "The board of health shall examine into all nuisances, sources of filth and causes of sickness within its town . . . which may in its opinion be injurious to the public health, shall destroy, remove or prevent the same, as the case may require, and shall make regulations for the public health and safety relative thereto . . ."

This is a very broad statute and may be considered as the basic law under which boards of health act. It is also one of the oldest, being based upon Chap. 16, Sects. 3, 5 and 11, of the Acts of 1797.

The first question to be answered is, "What constitutes a nuisance?" The Century Dictionary defines nuisance as "that which is noxious, offensive, irritating . . .", and, further, "such use of property . . . as . . . transgresses the just restrictions upon use or conduct which the propinquity of other persons or property, in civilized communities, imposes upon what would otherwise be rightful freedom."

From the point of view of the board of health, any use of property which causes discomfort to others may justly be considered a nuisance. It need not cause sickness. This was decided as long ago as 1846, when the Supreme Court of Massachusetts held, in the case of an effluvium arising from flowed land from which the water was occasionally withdrawn, that the corruption of the atmosphere need not be sufficient to be dangerous to health, in order to constitute a nuisance (11 Metcalf, 570).

In the same decision is a statement worthy of recollection, namely, that "a person is entitled to use his land to his own best advantage, subject only to this limitation: that he shall not use it to the detriment of others."

In the last Manual of Health Laws, Edition of 1915, there is quoted an opinion of the Attorney General that, under this section, boards of health may examine the children of a school if they have reasonable grounds for believing that cases of sickness, which are, in effect, causes of sickness, exist in such school.

When a board of health, after due consideration, has declared that a nuisance exists and issued in the proper form the necessary order or orders for its abatement, the person owning or maintaining the nuisance has no alternative but to obey the order, for the courts will not review the case until the orders of the board have been obeyed. Then, and not till then, will the court consider the question (179 Mass. 385).

Under this statute, the board can order an owner to abate a nuisance at his own expense, within 24 hours after notice or such other time as it may deem proper and, if he refuses or

neglects to obey the order within the specified time, he is liable to a fine of not more than twenty dollars for every day that he knowingly violates such order. (G. L., C. 111, Sect. 123.)

If the board sees fit, it may cause the nuisance to be abated and all expenses caused thereby shall be paid by the person causing or permitting the nuisance, provided he has had actual notice from the board of its existence. (G. L., C. 111, Sect. 125.)

It seems from these references, that a local board of health has almost unlimited power over nuisances. It is, in the first place, the sole judge of the existence of a nuisance, and, having decided that one exists, can compel the owner to abate it, or can abate it at his expense, before he can enter an appeal against its decision.

In spite of, or perhaps because of, these great powers, certain limitations have been placed upon boards of health when dealing with nuisances. Some of these limitations are included in the Statutes, while others have been imposed by decisions of the courts.

The notice ordering the abatement of a nuisance, in order to be valid, must be in writing, and may be served personally upon the owner, occupant or his authorized agent, or it may be left at his last and usual place of abode, if it is known and in the state. Otherwise, it may be served by posting upon the premises and by advertising in one or more newspapers.

The board cannot include in the order, a direction that the nuisance shall be abated in any specified way, for the courts have held that the owner may abate it in any proper manner, but the fact that the order does contain a direction as to how the nuisance shall be abated, apparently does not render the order void, as far as the existence of the nuisance and the necessity of abating it is concerned, although it is void as to directing the manner in which it shall be done. (143 Mass. 113.)

In order to avoid controversy, it is well to leave out of the order all reference as to the method of the abatement.

In case of a disagreement between the board of health and the person maintaining a nuisance, as to whether or not it has been satisfactorily abated, there seem to be no rulings of the court, but in the absence of such, it seems to be perfectly clear that the decision rests with the board of health, because it is plainly evident that, if the condition which was the reason for issuing the original order is not abated or removed to the satisfaction of the board, it still exists, from the point of view of the board, and its order to abate has not been obeyed.

In one case, in the writer's own city, in which the owner claimed that he had abated the nuisance and the board did not consider that he had, a complaint was made against him for failure to obey an order of the board. The

case was tried in the police court, the defendant found guilty and ordered to abate the nuisance to the satisfaction of the board of health, within 72 hours, with the alternative of having the maximum fine imposed in case of failure. The defendant appealed, but shortly afterwards withdrew his appeal, abated the nuisance within the specified time, and the case went no further.

In looking over the various decisions of the court bearing upon nuisances, there seems to be another implied limitation, *viz.*, that a board cannot issue a blanket order declaring that any specified condition or course of procedure constitutes a nuisance, source of filth or cause of sickness, even when it is convinced that such condition or course does, in fact, constitute such.

It seems, however, that it is entirely within the province of a board of health to declare that that particular condition existing upon the premises of John Doe or of Richard Roe, is a nuisance, although it cannot declare that the same condition if it should exist anywhere within the limits of its jurisdiction, constitutes a nuisance. As the Supreme Court declares in the case of the Commonwealth *vs.* Drew (208 Mass. 493). "Primarily it (*i.e.*, a nuisance, source of filth or cause of sickness) refers to something local . . ." which seems to mean that the board must consider each case individually.

The opinion in this case, while too long to quote here, is of great interest and should be read on account of its bearing upon the powers of boards of health.

If it appears that too much space has been devoted to the consideration of nuisances, it is because the supervision of such matters is a very important part of the routine work of a local board of health and one in which the public is much interested and very prone to appeal to the board for action. It is not an exaggeration to say that at least 30 per cent. of the calls coming to the average board of health are complaints in regard to alleged nuisances.

The next function to be considered is the care and prevention of diseases dangerous to the public health. This is, of course, a very important function and, to the average citizen, is one of the chief reasons for the existence of a board of health.

The power to declare what diseases shall be classed as dangerous to the public health is given by law to the State Department of Public Health, but the control of persons ill with such diseases and the measures to be taken to prevent their spread are in the hands of the local boards, subject only to the limitations imposed by certain statutes.

In the first place, the statute imposes certain duties on boards of health when they have re-

ceived notice of the occurrence of a case of disease dangerous to the public health.

G. L., C. 111, Sect. 104, directs the board of health when a disease dangerous to the public health exists in its city or town, to use all possible care to prevent the spread of infection and to give public notice of infected places—meaning, probably, of houses wherein the disease is present—by displaying red flags at proper distances, and by all other means which, in its judgment, may be most effectual for the common safety.

This section, which is a very old one, does not entirely conform to modern theories in regard to infection, nor to modern practice in placarding houses, but, as it stands, it is the present law governing placarding for disease, and it should be noted that it directs the board to give notice by “displaying red flags and all other means, etc.”

Section 112 of the same Chapter 111, directs the local board to notify the State Department of Public Health within 24 hours of the occurrence of a case of a disease dangerous to the public health, giving the name, age and address of the patient, and his disease. It shall also, at the request of the department, certify any such reports to the Department of Public Welfare. Under Section 113, it shall keep a record of all reports of disease, giving the name and location of the patient, his age, the disease, the name of the person reporting the case and the date of the report. The board shall also notify the school committee of such cases.

The same section requires the board to appoint a person, who need not be a member of the board, to give the notice required under Section 112. The appointment and acceptance of the appointment must be put on the records of the board, and the person accepting the appointment is liable to a fine for refusal or wilful neglect in reporting.

What will happen if no member or employee of the board is willing to accept this appointment and the fact is put into the records, the writer does not venture to state.

Under Sect. 95, C. 111, the board of health must provide a hospital, nurses and other assistance and necessities for persons sick with a disease dangerous to the public health, and may cause such person to be removed thereto, if it can be done without danger to his health.

If the patient cannot be moved, the house where he is shall be considered as a hospital, and all persons residing therein shall be subject to the regulations of the board. Under this section boards of health can impose quarantine restrictions upon persons living in a house in which there is a case of disease dangerous to the public health, and prevent unauthorized persons entering therein.

It should be remembered, however, that if the board decides to quarantine the wage-earner

or prevent him from carrying on his usual business, he is entitled to compensation, during the period of restraint, equivalent to three-fourths of his regular wages, but that this compensation shall not exceed two dollars per day. Apparently, this section does not give the board authority to seize a house and turn it into a hospital.

There are many cases bearing on this section (See 140 Mass., 314; 137 Mass. 554; 192 Mass. 317; 162 Mass. 176) which it would require a lawyer to unravel, and it seems that if the board decides to take possession of a house for this purpose, it should act under G. L., C. 111, Sect. 96.

There seems, also, to be some difference of opinion as to the power of the board forcibly to remove a patient to a hospital under either Section 95 or 96, and Section 97 says, “The provisions of Sections 95 and 96, so far as they confer authority for the removal of patients from their homes, shall apply only in the case of persons residing in boarding-houses, or hotels, or in the case of two or more families occupying the same dwelling, or in other cases in which, in the opinion of the board, the case cannot be properly isolated.”

It seems, to the lay mind, at any rate, that this final sentence leaves the decision as to the necessity of removal, entirely in the hands of the board of health.

Under the preceding section, *i.e.*, Sect. 96, the board must apply to a magistrate authorized to issue warrants in criminal cases, for the necessary warrant. The wording of the statute is permissive, and if the magistrate refused to issue the warrant, the board would, of course, be unable to remove the patient. Fortunately, most courts are willing to take the word of the board of health as to the necessity of removal, in all diseases where such removal is required, with the sole exception of tuberculosis, a disease dangerous to the public health and one in which removal is sometimes urgently required.

One point in regard to caring for a patient should be borne in mind, *viz.*, that under certain circumstances the expenses of caring for the sick are valid charges against the place of settlement, but any expenses incurred for quarantine and keeping people out of the house where the patient is, must be borne by the board of health of the place where the illness occurs. It is seldom necessary in these days to resort to the expedient of guards, whether armed or not, to enforce quarantine, but if such should be employed, the courts have ruled that such expense is not for the benefit of the sick person, but for the protection of persons living in the neighborhood and must, therefore, be borne by the place benefited, *i.e.*, the place where the patient is living, no matter what his settlement.

Another thing to be remembered is that the

board of health is limited to spending money for the care and support of the patient only, and cannot take care of the other members of the family.

It is very plainly stated in a decision of the Supreme Court (187 Mass. 150) that "the plaintiff city cannot recover expenses incurred . . . for supplies for other persons not ill, who were quarantined in the same house." This seems to debar any department of the city from recovering even when the family was quarantined, while an Attorney General has ruled that a board of health is not authorized to charge the Commonwealth any expenditures made upon the family of a person infected with a contagious disease, such aid being necessary only when the family of the person affected is isolated or quarantined. The aid should be furnished by the Overseers of the Poor, and does not pauperize the family. From this ruling it appears that the city furnishing that aid can collect for aid to the family when it is quarantined, but that it must claim through the Overseers of the Poor, whereas the decision already quoted seems to say that the city cannot collect at all.

There is another peculiar point in regard to reimbursement: G. L., C. 111, Sect. 116, says that these claims "shall be paid by the city or town in which he (*i.e.*, the patient) has a legal settlement, upon the approval of the bill by the board of health of such city or town."

The meaning is obscure and, as far as can be learned, the Supreme Court has declined to say whether or not, in case of disagreement about settlement, one city can sue another on such a bill, unless the bill is approved by the board of health of the defendant city.

It would be wise to try to have this law amended, so that there can be no doubt of its meaning.

The next great function to be considered is the protection of food supplies and, first, we shall consider the supervision of milk and dairies.

Every local board of health is required by law to appoint one or more inspectors of milk, the limitation in this case being that no one engaged directly or indirectly in the business of selling milk shall be appointed.

The inspectors shall keep records of the names and places of business of all the persons selling milk in the city or town, and may appoint collectors of samples who have power to enter places where milk is stored or sold and wagons used for selling milk. By G. L., C. 94, Sect. 43, the power of the local boards is extended far beyond its own borders by the proviso that no milk shall be sold in any city or town until the dairy where it is produced has been approved by the local board of health of that city or town.

This allows the local board to prohibit the

sale of milk from any dairy, no matter where situated, and, as that prohibition also excludes the milk from any other city or town in the State, it allows the local board to enforce its requirements anywhere.

Practically, it is very difficult to carry out this inspection because, under modern methods, milk comes from so many localities and such great distances, that it is impossible for a local board to inspect all dairies whose milk may be sold within its borders.

Under a recent agreement, by which certain cities and towns interested will combine and divide this work between them, a great improvement may be expected.

There seem to be fewer decisions of the court in regard to the control of food supplies than about other functions of local boards, but one dealing with the jurisdiction of the local board as against the State Department of Public Health, is of interest (203 Mass. 602). This has to do with the inspection of slaughtering and is too long to quote, but it should be read.

The supervision of bakeries is under the control of local boards, subject to certain regulations drawn up by the State Department of Public Health.

No decisions have been handed down dealing with the power of local boards in this matter, but it is hoped that the Court will be asked to pass upon the definition of the word "bakery" in the Statute, as by that definition the power of the local board is widely extended.

In this very hasty sketch it has been impossible to deal with all the functions of the local boards, but enough has been said to show that they have great powers and few limitations, provided they act intelligently and justly.

The local board of health can greatly increase its power by teaching the public that its board of health is a body to which it can turn for information.

During his service on the board of health of a small city, the writer has been impressed with the steadily increasing number of questions which the public ask the board of health, not only on matters connected with health, but many of them on matters over which it has no legal jurisdiction, and he is convinced that if the board will try to keep in close touch with its public and teach it to appeal to the board for advice on all matters connected with health, that it will have its public, both professional and lay, behind it in its work, and will be able to accomplish many things in which it would otherwise fail. In this way, its powers will be increased and its limitations diminished.



THE American Association of Anaesthetists and the Mid-Western Association of Anaesthetists will hold a joint meeting in St. Louis, May 23-24, at Hotel Jefferson, the first three days of the A.M.A.

PSYCHOSES, PSYCHONEUROSES AND PSYCHOPATHIC CONDITIONS IN CHILDREN.

A STUDY OF 100 CASES OF BOYS AND GIRLS UNDER SIXTEEN YEARS OF AGE.*

BY ANNETTE M. MCINTIRE, M.D., BOSTON.

Formerly Assistant Medical Officer, Psychopathic Department of the Boston State Hospital; formerly Assistant in Clinical Neurology, Northwestern University Medical School, Chicago.

THE Psychopathic Department of the Boston State Hospital (the Department now an independent State Hospital known as the Boston Psychopathic Hospital), receiving, as it did, only observation cases, probably admitted more children of fifteen years or under than any other psychiatric hospital in the United States.

The data offered in this paper cover an analysis of examinations made at the hospital during the years 1913 to 1919. Out of a total of 424 admissions of boys (237) and girls (187) under sixteen years of age, 100 cases were selected as suitable for this study. These were diagnosed psychopathic personality (49), dementia praecox (19), manic depressive (11), psychoneuroses (9), and unclassified psychosis (12). The remaining 324 children, who were for one cause or another admitted to the wards of the hospital for a period of observation, were diagnosed feeble-minded, defective delinquent, epileptic, congenital syphilis, normal (or "not insane, and not feeble-minded"), chorea, encephalitis, meningitis, brain tumor, brain abscess, etc.

The problems of the feeble-minded children have been thoroughly studied; the problems of the psychopathic and delinquent have been less adequately studied, but the problems of the psychoses and psychoneuroses occurring in children have received very little attention, probably because feeble-mindedness, psychopathic conditions, and delinquency at this age period overshadow the other groups.

Children have been brought to the outpatient department and have been admitted to the wards of the Psychopathic Hospital in gradually increasing numbers each year since the hospital opened in June, 1912. This has not been because of a rapidly increasing number of children who manifest symptoms of nervousness and who show, in general, difficulties in emotional and social adaptation, but because of increasing familiarity with the Psychopathic Hospital on the part of the individuals and institutions interested in preventive mental hygiene. Such individuals and institutions realize the urgent need of early psy-

chiatric study in cases of incipient mental disorder or of feeble-mindedness, or that all too large and somewhat formidable group of psychopathic personalities within which can fall the insanities. The individuals who fall within this latter group are difficult to place and to do justice to. They require the greatest amount of study and attention. My own personal experience with private and institutional cases leads me to believe that, aside from the necessity for continued prophylactic studies in all departments of mental defect and disorder, the maladjusted individual, the constitutional psychopath, who is neither intellectually feeble-minded nor insane, presents the biggest problem in psychiatry today.

Many of the boys and girls who were sent into the hospital wards for observation were found to be quite within the normal, both physically and mentally, but presented behavior problems not understood or well handled by parents or guardians. Taking into consideration the difficulties encountered by the psychiatrist who attempts to classify juvenile psychoses, and making due allowance for the usual disharmonies that are prone to appear at adolescence, we feel that the 100 cases offered in this study present in each case a sufficiently marked deviation from normal behavior and emotional reaction to justify the diagnoses made at the time.

The follow-up work shows that some of the children have since died, some have not recovered from their psychoses, others have made a good, others a less satisfactory adjustment, while still others in the group will doubtless continue to have a series of difficulties throughout life.

PSYCHOPATHIC PERSONALITY.

Wrongdoing is said to be the simplest, most primitive way of expressing one's individuality. Therefore, how may we know whether the boy or girl, who sometimes quite suddenly diverges from the usual social, mental, and moral reactions of the group to which he or she belongs, is a constitutional psychopath or whether the divergence is simply a reaction to a definite situation which, when analyzed, may readily be resolved and remain an isolated experience in the life of the individual in question. The asocial symptom, stealing, lying, or uncontrollable temper, which may be for the moment the chief symptom and the reason for the patient's being brought to the hospital or clinic for observation, must be correlated with other clinical and historical data, before one is justified in applying the term "psychopath" to the individual who appears for diagnosis.

Analysis of the histories of the 49 cases of psychopathic personality* embraced in this study

*Opportunity for this study was granted by the Department of Mental Diseases through the Massachusetts State Psychiatric Institute.

*This group includes seven cases which were diagnosed constitutional psychopathic inferiority.

shows, in almost every individual case, "that peculiar default, inherent in disposition and constitution, which we designate as psychopathic personality." In the matter of treatment, habit training is of first importance and should begin where all habit training must begin, to secure the best results—namely, in infancy. Too often, by the time the psychiatrist comes into contact with the patient, only the firm discipline and education of a special institution would be of value in the formation of more desirable habits.

One is often asked, "Just what do you mean by 'constitutional psychopath,' or 'psychopathic personality'?" For the enlightenment of the reader who has not yet had the question satisfactorily answered, I would here quote Pearce Bailey¹. "Constitutional psychopaths" are individuals who have "less than normal nervous resistance to the exactions of existence, and in this sense must be called psychopathic. In addition to those already in the grip of nervous or mental disease or defect is a separate group, of which the members, at the time of any one or more examinations, present no symptoms definite enough to justify their being classed with any disease type. Some are superficially brilliant, enthusiastic, laying some claims to brief leadership, but unbalanced, changeable, and eventually disloyal to any organization. Suggestible, they easily become the tools of designing propagandists in spreading seditious doctrines, or in the commission of acts in defiance of law and order. Others are characterized by abnormal personality traits, such as suspicion, self-consciousness, obsessions, lack of control, and their social histories reveal disorders in the sphere of behavior. They have records of having repeatedly got into undesirable situations without the capacity of getting out again unassisted. They do not profit by experience—on the contrary, they fall into the same pits over and over again. They are recidivists, whether the undesirable situation is criminal or not. They are individualists and unsuitable for work in coöperation with others. . . . Psychopathic personalities lead naturally to the subject of delinquency, as the psychopathic make-up is so largely represented among offenders."

For a more comprehensive understanding of the juvenile delinquent who may or may not be considered a "constitutional psychopath," the reader is referred to the studies made by Healy² and Bronner.³

The follow-up work (October, 1920) shows, in this particular group, only four individuals whose subsequent history was such that the diagnosis of psychopathic personality would seem unjustifiable. Thirteen of the group were found to have made a fair adjustment to environmental conditions; eighteen gave little or no promise of improvement; one had become

definitely psychotic; in six there was a question of beginning deterioration; one was in an institution for the feeble-minded, having made no intellectual progress beyond the age of twelve. We were unable to locate six.

In the two case histories given below, L. M. and L. C. illustrate the therapeutic value in ascertaining what kind of work the individual is most interested in and making that work possible of attainment. In the case of E. P., we find a boy who responded only to reformatory discipline and who seems to have profited unusually well by this curative measure. G. H. is the type of personality demanding careful observation and direction, especially throughout the adolescent period. He may be considered as belonging in the pre-psychotic group.

L. M., aet. 14 yrs., 9 mos., female, admitted to hospital June, 1917.

Family History.—Father died of cancer. Mother "peculiar" since childhood; probably psychotic. Siblings: one psychotic; one "very shallow"; one "very selfish." Patient is the youngest child. Said to be the most promising of the family.

Personal History.—Patient has had scarlet fever and diphtheria. Chorea three years ago. Entered public school at the age of five. In ninth grade grammar at time of admission to hospital. Although she has worked hard in school, has been unable to accomplish required amount of work and there is some doubt of her graduating this year. Has shown no immoral tendencies. Menses established. Lately she is exceedingly nervous and it is at times difficult for her to understand an ordinary question. Home conditions affect her now more than ever before. Referred by a social organization for observation, diagnosis, and prognosis.

Mental Examination.—Patient is averse to going into her family history, but answers questions regarding herself frankly and promptly. She is correctly oriented. Memory good, except for school knowledge, which is not well retained for a girl of her age. Attention good. Associations quick and often show a wide range. Train of thought not retarded. No confusion or flight of ideas. Judgment very good. No delusions or hallucinations. Emotional tone rather dull. Frequently appears depressed, but denies feeling profoundly depressed. Her own statement regarding her condition is interesting: "I sometimes get blue over nothing at all, but it usually goes away in a few minutes, sometimes in a few hours. I worry about my school work for fear that I shall not be promoted." (Have you ever thought of suicide?) "No, I have never thought of killing myself; I want to live as long as I can." (You have friends?) "Yes, I have quite a few friends. I do not like to go to school, but I know that you'll never get anywhere if you

don't. I have an ambition to be a stenographer, but the teacher tells me I will never get there and I had better learn some industrial trade."

Physical Examination.—Negative, except that during the mental examination many small movements of the fingers and twitching of facial muscles are observed.

Subsequent History. (September, 1920).—Patient is living happily with her two sisters and two maternal cousins. She has attended school regularly since she was at the hospital. Graduates from high school this year. Is taking stenography and typewriting, and plans to be a stenographer. Has worked as sales-girl in a department store the last two summer vacations. She is not "nervous" now. "Seems like other girls."

L. C., aet. 13 yrs., 9 mos., female, admitted February, 1916.

Family History.—Father is alcoholic. Is married to second wife. Mother died at childbirth, when patient was a small child. No siblings.

Personal History.—Birth and infancy normal, so far as known. Diseases: measles, chicken-pox and diphtheria. Entered public school at the age of five. Is now (at 14) repeating, for the second time, seventh-grade work. Patient is sent in to the Psychopathic Hospital by her physician for observation and diagnosis. She is said to be untruthful and dishonest; has been begging for some years; is uncleanly in her personal habits; neglected at home. Father says that at the age of six patient began begging. "She lies, steals, and is generally unreliable. Does not seem to fear discipline." At thirteen, she went to work, doing housework. From her employers we learn that she was inefficient, dishonest and even while working in a very good family, still went out begging at other houses. Her school report is that she is not reliable. Otherwise, her school work is fairly good.

Mental Examination.—Psychometric examination gives a mental age of 11 $\frac{2}{5}$ years. Has good comprehension, not over-suggestible. Flow of free association is retarded. Learning ability good. Orientation and memory good. Retention of school knowledge fair. No delusions or hallucinations. Emotional tone quite normal. She is agreeable and coöperative. Conduct good. Answers to questions given quickly and to the point. She is quite talkative. Childish in appearance, manner, and intellect. She shows fair insight. Admits that she has done some begging. Began to lie when she was a little girl. This habit started by making excuses to her step-mother when she did not return promptly from doing an errand, and grew until she would sometimes lie without any reason whatsoever. Her father would scold her for this. Thinks

that her father often blamed her unjustly for things that the other children did.

Physical Examination.—An undeveloped girl of 13. Has not arrived at puberty. No evidence of organic disorder.

Subsequent History.—Patient was discharged to her physician. Went from the hospital to live with her grandmother. Later was sent to an institution because of her stealing. She was paroled after six months. Has lived outside ever since. When first placed out she stole one or two trifling things, but this phase soon wore off and has not since appeared. Physically, she was retarded in development; was "thin, and peaked" until puberty was established at the age of 16. She then began to grow rapidly. Did not feel well during this period of rapid growth, but repeated examinations failed to show anything wrong in her physical condition. She had considerable trouble with one foot for two years. Was treated, free of charge, by a competent physician, who was frank in saying he could not diagnose the condition. Later, stated that he had about concluded that the whole thing was "mental," for as soon as the patient got to doing the thing that she was anxious to do, the condition cleared up.

Patient finished grammar school at 15, attended high school for two years, but her attendance was irregular and her progress slow, as these were the two years that she was having trouble with her foot. At the end of this time, she was allowed to leave school and become a telephone operator—the thing which had been her ambition for years. Is now living with a maternal aunt and is very happy in her work. The outlook for her seems cheerful and hopeful.

E. P., aet. 11, male, admitted to hospital August, 1918.

Family History.—Father dead. Cause of death unknown. Mother living and in good health. Is married to second husband. Siblings: one brother, age nine, in third grade, normal. Paternal grandmother died of cancer. No history of alcoholism, insanity, or epilepsy in family.

Personal History.—Birth difficult. Instrumental delivery, resulting in "two dents in his forehead." Was normal in three weeks' time. Walked at one year. Talked at 18 months. Always well and strong. Had measles and whooping-cough. Tonsils and adenoids removed at the age of seven. Entered kindergarten at four. Repeated third and fourth grades. Was in special fifth grade last winter. If he concentrates, does well in his school work, but will seldom concentrate. During the past winter, slept poorly. His body would jerk and he was restless. Complained that his bones ached. Does not smoke or use liquor. Mother suspects masturbation. Three years ago, threw a stone through a window, was arrested and placed on

probation for one year. Reported regularly, and has not been arrested since. Has always been affectionate and polite, but has fits of temper which last for a few minutes; then he is penitent, saying he cannot help it. During his outbursts he will hit his head against furniture, wall, etc. Will strike his mother if she comes near him. Will yell and swear. His mother and stepfather have little control over him. He is quiet when alone, but if anyone is around he must be teasing them, and does not always do so in a playful spirit. Cannot get along with children; is much better with older people. Loves music; plays the accordion, violin, and harmonica. Has a very good singing voice. Sings solos in church at Christmas and Easter. Likes to act alone. Will imitate Charlie Chaplin and other actors. Six months ago he was sent to a home for children for observation. Remained there five weeks. Attempted to strangle himself while at the home. Once told his teacher he wished that he was dead and out of his misery. Said he thought that people did not like him. For three months past, he has been stealing from his family; buys sodas and takes car rides to the beaches. Always returns the correct change when sent on purchasing errands. One week before coming to the hospital he stole \$10 from the home of a friend. At first denied the theft, then owned up without any apparent fear of consequences. Said he had done good business: bought some small chickens, a harmonica, a typewriting machine, and a knife. At school, while playing with a knife, a boy attacked him. Patient cut the other boy. The teacher advised the family to see a physician about the patient, and he was referred to the Psychopathic Hospital for observation and diagnosis.

Mental Examination.—Examination and observation over a period of ten days revealed nothing of significance except increased psychomotor activity. The patient was constantly playful and active. When describing anything, he made many gestures. Attention easily gained but distractible. Flow of thought rapid. Association wide and rapidly formed. School knowledge well retained. Emotional tone happy, apparently slightly exhilarated. Friendly with everyone. No evidence of depression while at the hospital. No delusions or hallucinations. According to his own story, he did not intend to kill himself at the children's home. He put a chain around his neck and told another boy that he would bet him any money that he (the other boy) could not hurt him by pulling the chain. One of the "ladies" came in and "the fun was all off." They thought he was trying to choke himself. Questioned about his activities, he admits theft. Has no good reason for it. He likes to visit the beaches because there is such nice hot sand there to dig holes in; likes to sit down and

get sunburned; likes to swim in the summer and to skate and coast in the winter. (Do you like moving pictures?) "Yes, I like good ones. I like to see when they draw with a pencil." Patient gave a graphic description of a Charlie Chaplin picture. "Oh, he's a funny guy!" (Were you ever arrested?) "Yep, I broke a window on a train." (What about these fits of temper?) "Sometimes, when the boys tease me, I get so mad that I want to go after them." Then, quite spontaneously, the patient said, "I'd like to be out on a farm now; I'd like to ride on the cow's back.—milk,—I'd jump on the horses' backs—I know a good way to steer a cow—steer him by the horns."

Subsequent History.—After leaving the hospital, the patient continued to give trouble at home, and one month later (September, 1918), he was sent to a reformatory for boys. In October, 1920, the school gave us the following information regarding the boy: "He remained here one year, having earned his right to parole by good conduct. On the whole, he was an average boy here at the school. He received no punishments and never served a term in our Disciplinary Cottage. He showed occasional fits of temper and at first was inclined to be inattentive and lazy, but showed great improvement with training. We have no record of him since he was paroled to his parents in September, 1919."

G. H., aet. 9 yrs., 7 mos., male, admitted August, 1916.

Family History.—Father died nine years ago. No history obtained. Mother is in a State hospital, where her mental diagnosis is dementia praecox. No siblings.

Personal History.—Nothing known about the patient's birth, infancy, or childhood diseases. He is a well-developed and well-nourished boy, showing no physical defect. At the time of admission it was stated that the boy had violent outbursts of temper which were anywhere from a few minutes to a day in duration. These attacks have increased in violence and frequency during the last few months. There seems to be amnesia for what occurs during these attacks. Any slight irritation will upset him; sometimes there is apparently no cause for his explosions. He is destructive and depressed at times, and has said that he would like to do away with himself. He is very suggestible and, on occasion, will tell the most obvious lies.

Mental Examination.—In the psychometric examination, the boy grades fairly evenly at 10 years, showing a quick, nervous reaction and an effort to satisfy the examiner more than to solve the test problems. His easy suggestibility is noted. Orientation and memory tests show no defect. No delusions or hallucinations. His attention is good; flow of thought, reten-

tion of school knowledge, and interest in simple current events are all very good for a child of his age. Conduct quiet and orderly. He amuses himself on the ward by reading, writing, drawing pictures, and trying to help the nurses. Emotionally, he is a bright, affectionate child, showing the usual child's reaction to attention. In explanation of his own conduct, the boy says that the other boys in school always picked on him, and when they did, he would kick them in return; says that he will not stand for being teased or mistreated; admits that he has very bad outbursts of temper, but that there is always a cause for them. He struck a small girl and shook her by the neck because she put her tongue out at him. He does not always remember what he does when he is mad. He can give no other reason for telling lies than "just 'cause I felt like it." He felt unhappy when his mother went away in 1915. Otherwise, he thinks that he has always been happy and contented.

Subsequent History.—On discharge from the hospital, the boy was taken to the Temporary Home of a children's society. Caused no trouble while there. A few weeks later he was placed in a temporary foster home, where he was reported as a physical coward and very sensitive, but responsive, affectionate, and showing a desire to do right. Three months later (December, 1916), a second foster home was found for him. In February, 1917, his foster mother reported that he was very erratic and quick-tempered. At first, he was jealous of the other boy in the home, but overcame that fault. In May, 1917, he was doing good work at school and was to be promoted. Had begun to masturbate continually and to wet the bed frequently. Had an abnormal appetite. November, 1917, reported "quick and smart in his manner; still doing well at school; nervous and excitable at times; quarrels a good deal with the other boy in the home. Has stopped wetting the bed and masturbates less." One year later he was in the sixth grade and doing good work. Said to be "helpful and willing at home; quiet spoken, refined looking and likable. Bad habits have gone and he is less nervous." Another year later (October, 1919), "a good average boy and doing well in school; is in the seventh grade. Does not care much for other children. Would rather stay in the house and read than go out with other boys. He is honest and straightforward." In August, 1920, "has been promoted to the eighth grade; is bright in school, but requires constant pushing to keep him up with his work. He is a great reader, but dislikes work and play; honest, but unreliable; cannot remember errands he is sent on; loses the money and leaves the package after he has got whatever he was sent for." Rapid physical growth and a daily long ride (five miles) to school suggest

a probable cause for this slump in the boy's activities.

DEMENTIA PRAECOX.

Our study shows that only 4.5 per cent., or 19 cases out of the 424 boys and girls who were admitted to the wards of the Psychopathic Hospital during the period under investigation, were considered fairly well-defined cases of dementia praecox. In fact, with information at hand regarding the subsequent history of these 19 cases, three cases—one during a period of six years and two during a period of two years—have manifested no signs of the disease. They have been economically efficient and have made a satisfactory social adjustment, which would leave us but 16 pure cases of dementia praecox. Of these 16 cases, only five could be classified as to type. Two were diagnosed dementia praecox simplex; two, catatonic, and one, hebephrenic.

It is interesting to note that at the time of admission to the hospital, the youngest member of this particular group was thirteen years of age, which fact gives rise to the query as to how early the disease may be recognized.

Kraepelin⁴ says, in discussing 1054 cases of dementia praecox, that 3.5 per cent. began before the age of 10; somewhat less between 10 and 15, and then ran to big numbers; between 15 and 20, 21.7 per cent.; between 20 and 25, 25.5 per cent.; 25 and 30, 22.8 per cent.; and then they drop off. The point we wish to emphasize is that the number of pure cases between 10 and 15, and below 10, does not equal the number of adult cases that from early childhood up have shown mental weakness. The real symptoms of the disease usually begin later.

A careful study of the constitutional make-up, as revealed by the life history of individuals who develop dementia praecox, convinces one that for many months—indeed, in some cases for years—before the disease is recognized as such, there are many symptoms premonitory of the actual disease, which may in some cases be long protracted; that the schizophrenic make-up may be fairly easily recognized during the early years of childhood and adolescence; in fact, that the outbreak of the psychosis is, as Meyer states, "the final explosion of a long train of antecedent preparations."

As is shown in our study of juvenile cases, as well as by the studies of Kraepelin, the mental disease process known as dementia praecox would not appear to develop as a recognizable psychosis in very great numbers before the beginning of the adolescent period. As Adolf Meyer⁵ and others have pointed out in important treatises on the subject, adolescence is in its beginning an important and critical period in the life of every individual, and disorders of the mental sphere, difficulties of in-

instinctive and emotional adaptation, either progressive or episodic, are not uncommon. These cases should, indeed, be treated seriously as regards correction of all remediable physical and mental defects, but in fairness to the patient, one should be guarded as to prognosis and also in the matter of naming the mental disorder. There are many cases that fall symptomatically in the dementia praecox group and by reason of their disabling symptoms become incompetents, whereas, given proper treatment, their lives might again become of real value.

Dementia praecox, or, to use the more pleasing and more descriptive name of schizophrenia, used by Bleuler⁶, is no longer looked upon by the progressive psychiatrist with the same degree of hopelessness as to outcome as formerly. One still hesitates in any given case to give an unqualifiedly favorable prognosis, but we do know that in many instances, where the coöperation of all concerned can be secured, the disease may be aborted, provided the necessary treatment is instituted early enough in the course of the disease, *i.e.*, before the schistic trends have become permanently established. As clinical deterioration does not necessarily determine brain tissue degeneration, much may be expected if preventive measures are instituted early in the development of the disorder.

It is the belief of many who have made an exhaustive study of the subject that persons who develop dementia praecox, though often showing precocity of development in the intellectual field, are, from the very beginning of life, fundamentally deficient in some one or more of the vital forces which enable the better organized person to withstand, or, at the most, show a relatively slight abnormal reaction to the stress and strain attendant upon the developmental period of life. Southard⁷ speaks of dementia praecox as the "obscure, quasi-functional, but probably in some sense organic disease, dementia praecox." In writing on the "Anomalies in Dementia Praecox Brains," Southard⁷ says: "The underlying hypothesis here is that the anomalous regions of the brain are in some sense weak places therein, such that disease of a toxic or metabolic nature, for example, at puberty, may unfavorably affect the anomalous and poorly constructed region."

It is a demonstrable fact that instinctive and emotional disorders do affect the metabolism, also the proper functioning of the vegetative nervous system of the individual. The poorly functioning vegetative nervous system in its turn may cause an imbalance in the endocrine system and we find as a result a hypo- or a hyperactivity of some one or more organs.

Whether the disease be dementia praecox or some other disease, to cure by prevention is the most effective cure known. Shall we wait until we know which is the "cart" and which

is the "horse," or shall we rather use what knowledge we have regarding the working factors in this most common of all mental disorders, and put forth earnest effort to prevent its increase? But we must first recognize and help others to recognize the fact, first, that certain individuals are predisposed to certain types of reaction; and, second, that unfavorable reactions may be modified to the benefit and happiness of all concerned, even though the schizophrenic nature of the disorder may be fairly well established. It is difficult in cases of this disorder to make parents realize that the peculiarities of the child are due to anything save wilfulness, or that early treatment is the only safeguard against the tragedy of a mental breakdown.

In the case of S. A., cited below, we have a developing psychosis of a schizophrenic nature. It is the type of case in which we would expect considerable modification under well-selected psychotherapeutic methods, namely, analysis and reëducation. In the second case, that of M. C., we have a child who was considered "peculiar" before the age of three, and at a later age showing certain physical stigmata, although apparently normal in his mental development until the age of eleven. Prophylactic treatment in the case of M. C. would seem less hopeful of good results than in the case of S. A.

S. A., aet. 15, female, admitted September, 1915.

Family History.—Father living; health and habits unknown. Mother died about 10 years ago. Cause of death unknown. Siblings: three brothers and six sisters; condition of health and mentality not obtainable. Patient is next to the youngest child.

Personal History.—Our informant, who is the patient's brother-in-law, says that she is of an irritable temper. Has had great difficulty in learning. Did not like some of her teachers and had trouble with some of the other children. Was sent to a private school, where she also failed to get along well. For the past month has been extremely irritable. Would become depressed and then excited. Says she is "Jupiter's daughter."

Mental Examination.—The psychometric tests show that the patient has fairly good comprehension and memory, but poor apperception, and defective perception of form. She is not suggestible. Attention is slightly unstable. Grades somewhat unevenly at 14 years. Mental impairment is indicated by certain irregularities in her reaction to tests given. In the usual routine mental examination the patient seems to have a good memory for events of a personal nature. She refuses to answer questions regarding school knowledge. Knowledge of current events is limited. No hallucina-

tory ideas or experiences elicited; emotionally, quick-tempered and disagreeable. At times, very irritable to the nurses; shows a negativistic trend. Is extremely self-centered and seclusive; will have nothing to do with other patients. Has little insight. Her attitude toward people and things in general is very paranoid. Has expansive ideas about her own ability, powers, etc. She says that she has the power to make people like or dislike her; she knows that she has always been different; she is much above other people in some respects and much below the average in other respects, but she does not know what this difference is; she must be abnormal; has never cared to play with other children of her own age; they used to call her "queer"; she does not understand herself; has tried to think it all out and only gets very much confused and muddled, so she does not know what to do. At home there was one sister whom she particularly disliked, who seemed constantly trying to "boss" her. The patient dislikes her brother-in-law because she thinks that he is trying in some way to show his superiority over her. She does not like it at the hospital; because she is treated like every other person. She feels she should have special attention, *i.e.*, individual attention, a private room, special doctor, etc.

Physical Examination is essentially negative. Menses were established at 13½ years. Periods somewhat irregular.

Subsequent History.—Impossible to trace patient. She was discharged from the hospital to go to relatives in the South.

M. C., act. 13, male, admitted July, 1918.

Family History.—Mother unmarried. Was sentenced to the State Reformatory for Women, for intemperance, within one year after the birth of patient. Hereditary syphilis suspected. No proof of same.

Personal History.—Patient was noted as "a most peculiar child until the age of three years." Then appeared "normal" for eight years. Attended school, was in the fifth grade at the age of ten. Was said to be as bright as any child in his class. At eleven years of age, he began to complain that the other children were annoying him and it was observed that he had become somewhat seclusive. His foster parents began to notice that he was cowardly. On some occasions he had spontaneous outbursts of silly laughter. He seemed to have a fear of getting his hands wet. There was a great change in him. He began to practise masturbation without shame, and also suffered from enuresis. Seemed weak, both mentally and physically. Apparently could not concentrate on any subject. He became very silly, laughed most of the time, frequently spent many hours sitting in a chair without moving or speaking. At the age of thirteen,

his foster parents concluded that they could do nothing with him, and he was sent to the hospital.

Mental Examination.—When first seen at the hospital, the patient was in a rigid attitude, hands by sides, chin lowered, expression set, eyes dilated and staring. He was mute, resistive, would not move unless forced to do so. No cerea flexibilitas demonstrated. No evidence of hallucinations or delusions. Answered questions with "yes" or "no," following each such answer by the statement, "but I want to be in the bath: I like the tub better than the bed." Physically, he was somewhat defective in appearance. Stature below normal; ear lobes attached; palate high, arched; forehead low; blank facial expression. He was well nourished, and critical examination revealed no evidence of organic disease. Urinalysis negative. Wassermann reaction of serum and spinal fluid negative.

Subsequent History.—The patient was committed to a State hospital, where he has remained continuously for two years (October, 1920). He seldom speaks, except to give monosyllabic replies to questions. He denies hallucinations, but reacts to both auditory and visual hallucinations. Throughout his entire stay at the hospital he has been slovenly about his person and clothes, and apparently entirely indifferent to his surroundings. For the past year he has been working in the industrial room. Shows a childish interest in new things, but is easily discouraged and soon becomes tired of routine work. Has many mannerisms. Eats and sleeps well and is in good physical condition.

MANIC DEPRESSIVE.

A review of the literature would indicate that manic-depressive psychoses are not common at this age period (below 16 years). Eleven cases only—seven boys and four girls—were found in the 424 children admitted to the hospital during a period of six and one-half years. These were all rather frank cases of manic-depressive psychosis. All but one were in the manic phase of the disorder at the time of admission to the hospital. Four suffered more than one attack. Follow-up work shows that one girl has remained continuously in the State hospital for six years and is expected to remain there, inasmuch as her attacks increase in severity as she grows older. One boy, who was making a rapid recovery, eloped from the hospital with his mother and has not since been located. The other nine patients made a good recovery from individual attacks.

In contradistinction to the introverted type of personality of the schizophrenic, we have, in the eleven boys and girls under discussion, a history of mental and social make-up of the extroverted type. Some of these manic-depressive patients had always shown a hyper-

excitability. They were emotionally unstable, often irritable and disagreeable. Were said to be "normal" previous to the attack of mental disorder. Heredity of insanity is demonstrated in five cases. In six there is no admitted or known heredity of insanity.

While unable in every case of manic-depressive psychosis to uncover the hereditary predisposition to the disease, psychiatrists believe that persons who develop this mental disorder are "victims of the tyranny of their organization." There would seem to be, especially in every case of acute mania, a hereditary instability of brain and hormones. The tendency to periodicity, remission and relapse, suggests a physiological imbalance somewhere.

Observation shows that the periods of exaltation, depression, and sanity differ in the same patient at different times. They vary in point of duration as well as intensity. In lessening the duration and intensity of the individual attack, modern methods of treatment seem to accomplish much.

In the matter of prophylaxis in childhood, the physician who believes with Clouston⁸ that "the bodily temperature at which delirium begins in a child is a good index of its brain constitution and temperament," may do much to help build up the resistance of such a child, therefore, of the adult. Almost all children have one or more of the acute infectious diseases. Some become delirious with a very slight elevation of temperature. In such children the whole organism should be kept, as nearly as possible, in a state of physical perfection. A well-regulated mode of life, freed from unnecessary excitement, plenty of outdoor, muscular exercise and wholesome, nutritious food will do much to prevent a first attack of this disorder. As is shown in the description of the manic-depressive psychosis of a boy of fifteen, the symptom-complex and course of the disease vary little from the same type of psychosis in the adult.

H. P., aet. 15 yrs., 10 mos., admitted April, 1916.

Family History.—A maternal cousin had a manic attack.

Personal History.—Birth and development normal. No diseases. Left school a year ago. Did not get along well and failed in several grades. Went to work in a shipping department after leaving school.

Make-up.—Always quick-tempered, argumentative and disagreeable. Not obedient, but headstrong and wanted his own way. Since puberty he has been more quick-tempered and "grouchy." Never depressed. He wanted to be an electrical engineer, but "his mind was occupied with too many things and he did not know what he wanted to learn."

Onset of Psychosis.—Four days before admission to the hospital he quit work because

he was not feeling well. Complained of headache and general ill-feeling. Got up at one o'clock in the morning and said "too many things in my head, I can't sleep." He then began to act strangely, sang, shouted, talked foolishly, cried, whistled; could not sleep; would either lie in bed or pace up and down the rooms. Was brought to the Psychopathic Hospital after he had jumped from a second-story window of his home. On the previous morning he had been crying and singing. In the afternoon he was noisy. Chased the family out of the house. He then rushed out and rolled about in the street. Was carried into the house continuing his activities. Talked about saints and prayed. Chased the family out of the house again, this time brandishing a knife. Then locked the door, climbed out of a second-story window, and jumped.

Mental Examination.—No hallucinations or delusions elicited. Emotional tone elated, with occasional weeping. Psychomotor activity markedly increased with excitement and flight of ideas. Attention difficult to gain and could not be held. Constantly shouting, singing, lying down, and standing in various attitudes. Only rarely would he answer a question. When he did, his reply to the question would start a new line of ideas which he would utter in rapid succession. The following is a sample of his production: "We'll chase that devil out yet—Michael Angelo—Christopher Colombo—Julius Caesar the great conqueror—Socialism—I can point out any ruler, any president, any emperor in the world. Santa Maria Virginia. I am the might, Rome, Rome. Christo Dio. I am God. That's why I keep this world prosperous. Civilization—prosperity—Diabolo—Spirito sancto—George Washington—Bunker Hill—I fought in the battle of Bunker Hill—years ago—years ago—centuries—centuries—ages—ages. The people did not believe me," etc.

Physical Examination.—Negative.

Subsequent History.—At the end of three weeks the patient was transferred from the Psychopathic Hospital to a State Hospital. In October, 1920, we received the following report from the hospital to which the patient was transferred: "He was very flighty, playful and mischievous for a very short time after his transfer from the Psychopathic Hospital. When he cleared he was very comfortable, well-behaved, and very much liked by all the people here at the hospital. He had parole for several months, and was dismissed on trial visit May 20, 1917, and discharged May 20, 1918. Diagnosis: Manic depressive, manic, condition recovered. I have seen him several times during the year of trial visit and once or twice since, when he appeared perfectly well."

PSYCHONEUROSSES.

While other forms of psychoneurosis than hysteria are found in childhood, our study shows that six cases were diagnosed hysteria, and a provisional diagnosis of psychasthenia (not clearly demonstrated) was made in two cases. No other forms noted.

The mental reaction which we designate as hysteria is particularly frequent in young people during the pubertal and early adolescent period.

Hysteria may have a purely emotional basis, nourished by auto- or hetero-suggestion. The disorder may easily include both physical and mental (emotional) components. In the case histories given here, both types are exemplified. One case shows the development of hysteria, associated with certain unconscious ideas, having a content of painful emotion not recognized by the patient as related to her unpleasant physical symptoms. In the second case, we have a definite physical disease accompanied by a hysterical type of reaction.

A. B., aet. 15, female, admitted April, 1915.

Family History.—Father died of tuberculosis. Mother is insane. A maternal aunt had a depression of two years' duration. One sibling, living and in good health.

Personal History.—As given by the patient. Entered kindergarten at the age of four. Left school at fourteen to go to work. Was in the first year high school. Always got along well with her teachers and the other children. Started to work in a factory after leaving school. Found the work "trying on the nerves, although not hard." The patient characterizes herself as not very truthful on some occasions, but trying to overcome the fault. As a child, had a violent temper—now she is able to control herself. Says her patience is pretty short at times. Mood usually cheerful. Likes to be busy. Thinks that life would be a little better if it were not for her "spells." The patient is referred to the Psychopathic Hospital for observation by her physician, who says: "She is subject to sudden attacks of complete unconsciousness coming on without warning and lasting a variable time. Averages about one a week." The first attack is said to have occurred immediately following the receipt of a letter seemingly written by her mother's nurse, notifying the patient of the mother's death. (Mother is still alive.) The letter, when found by a member of the household, was enclosed in an old envelope addressed to the patient in the mother's handwriting. The writing of the letter itself suggested the possibility of the patient having written it. She insists that she did not write the letter, but got it from the mail box. The letter closed with "sympathy

of her nurse." In describing the onset of her "fainting" attacks, the patient says that after reading her letter, she asked a relative what she should do; she then started to go upstairs to see a woman who had been kind to her and on the stairs she became unconscious. Three months later she had another attack at 7.30 in the morning and remained unconscious until five o'clock in the afternoon. More recently the attacks have been recurring quite regularly, about once a week, and always about the middle of the afternoon. There is a brief "aura" described by the patient, she cannot seem to speak—her breath chokes her. "It comes on so sudden it takes my breath away." She has received minor injuries, such as skin abrasions, in falling. There is never any outcry. No involuntary emission of urine. No biting of the tongue. At times, she will come out of the attack for a moment, will hear those about her talking, but not distinctly enough to hear what they say. On regaining complete consciousness, she is often bright and alert. Sometimes she has a severe pain around her heart, and a headache. "Then it seems as if life was not worth living."

Mental Examination.—The usual routine examination reveals nothing of pathological significance. While sitting up in bed for physical examination (of chest), the patient suddenly became limp and fell back on the pillow. There was a constant twitching of the eyelids, which were quite firmly closed. Eyes rolled up so that the pupils could not be seen. There was apparently no response to touching the ocular conjunctiva with the head of a pin. Lips and teeth were quite firmly closed, but could be opened with a throat stick. Arms and legs flaccid. No response to vigorous pin pricks anywhere over the body. Deep and superficial reflexes all present and normal in reaction. No convulsive movement at any time. After an interval of about three minutes, the patient's face became red and she began to perspire quite freely, especially over the face, hands, and axillary regions. A smile crept over her lips, she sighed, gradually opened her eyes, complained of a sharp pain in the back of her eyes, which quite quickly passed away. She denied any knowledge of what had taken place during the attack. She was almost immediately laughing, as though nothing had happened. She then responded to pin-prick, and appeared in every way as prior to the attack.

Three days later, just after the physician had spoken with the patient, the nurse called and said the patient had fainted. She was found lying on her back at full length on the floor. Extremities perfectly flaccid. All reflexes present. Eyes rolled upward so the pupils could not be seen. There was a peculiar twitching of the lids. No response to pain stimuli. She was removed to a vacant room and again

placed at length on the floor. Her condition remained the same for about thirty minutes, when a slight twitching of the right hand was noticed; following this, the left hand began to twitch. Finally, her facial expression changed to one of fright or pain. Her breathing became more rapid and labored, and it appeared as though she were about to regain consciousness, when she relapsed into her previous flaccid, expressionless condition. These phenomena were repeated several times. During the last, she seemed to approach nearer consciousness. Her body rolled slightly from side to side, and the lower teeth pushed over the upper lip as though to bite. After fifty minutes, at the end of one of these paroxysms, her eyes opened, and after several questions were put to her, she finally spoke. She said that she felt weak and very tired. While she was still in a semi-dazed condition, an effort was made to have her recall her experience of the last hour. With continuous questions, at times leading, it seemed that she had been in a large room which she could not place definitely, but thought might be in this building. There was a large group of people around her, including members of the hospital staff, her aunt, and others she did not recognize. She was very frightened and wished to run away but dared not. Some one spoke to her. She had an indefinite idea of accusations of infidelity by the aunt. The patient remarked that she had never before remembered so much that had occurred during an attack. Although still weak, she felt strong enough to sit up in a wheel chair and was so returned to the ward.

On the following day, patient told her physician that, thinking it over, she probably had had similar experiences during previous attacks. Remembers things that her aunt has said to her.

Physical Examination.—A well-developed girl of 15. Hands and feet moist, cold and cyanotic. Marked urticaria facititia, especially over the back. Slight systolic murmur heard at apex. Neurological findings negative. Wassermann reaction of serum negative.

Subsequent History.—In a new environment, following her discharge from the hospital, and under psychotherapeutic treatment, the patient's hysterical attacks gradually abated until at the time of our last report (October, 1920), she has been entirely free from the attacks for two years. Entered high school in 1915. Is now in the sophomore year at college. Is said to be "a high-strung, sensitive girl, but shows extraordinary poise and philosophy for one of her age."

M.B., aet. 14 yrs., 10 mos., female, admitted July, 1918.

Family History.—Father mentally "peculiar," a gambler, sexually immoral. Deserted

family in 1914. Mother a forlorn-looking woman, apparently subnormal mentally. Siblings: four, history not known. Patient is the second oldest. She is referred by the State Board of Charity.

Personal History.—Previous to present illness, is not recorded. She was in the eighth grade at time of leaving school. In April, 1918, patient was reported to the State Board of Charity as very ill with acute heart trouble. She was sent to a hospital, where she remained about one month. Was discharged, but grew much worse during the two days she was at home. Returned to the hospital, and later was transferred to another general hospital. In the second hospital she had two serious attacks during the five weeks that she was there, suffered much pain in the head, ran a high elevation of temperature and had spells of unconsciousness. These spells were usually preceded by a period of intense restlessness and excitement. At times she was quite mute, somewhat negativistic, had hysterical contractures. At other times, she appeared quite normal. The patient finally became so noisy and was such a disturbing element to the other patients in the general hospital that it was necessary to transfer her to the Psychopathic Hospital. The diagnosis of her condition at that time was mitral regurgitation, plus hysteria.

Mental Examination at the Psychopathic Hospital revealed no abnormal reactions. In fact, during the ten days' observation she showed no mental symptoms. She slept soundly at night. Was quiet, pleasant mannered, and coöperated well with everyone. Psychometric examination gave a normal mental age. Because of her cardiac condition, general hospital care was advised.

Physical Examination.—General development poor. Menses established four months ago. Mitral disease present. No stigmata of hysteria.

Subsequent History.—In October, 1920, the following letter is received in response to our inquiry: "After B—— left your hospital, she was placed at —— for several months, until her condition so improved that she was able to return to her home. She remained at home the following winter, and the next spring went to work in a shoe shop, earning fairly good wages. This work was not advisable, but seemed better for her physical condition than to be running around the streets as she had done. The work at the factory, however, proved too much for B——, and she was obliged to give it up and remain at home. She had been a patient at the —— Dispensary and they succeeded in getting her into the —— Hospital. As to her mental condition, she is a difficult girl to control in her home, but the mother is not up to the discipline of a difficult girl who is also sick. At times, she has had one or two hysterical attacks, but nothing as serious as the one in the

— Hospital, which was the cause of her being sent to you. At the present time, she is doing very well, and is a fairly satisfactory patient at the Hospital."

Observations made during and subsequent to the recent war, revealed the fact that hysteria minor is not uncommonly found among apparently well-organized individuals when placed in certain circumstances. It has been quite clearly demonstrated that "violent emotions obviously prepare the soil and create a predisposition for hysterical manifestations. They increase suggestibility at the expense of the critical sense, and by occasionally producing actual states of slight mental confusion." Babinski⁹ believes that hysteria minor is, so to speak, open to every one, and further says, "hysteria major hardly ever develops except in individuals who are predisposed to it by heredity or nervous antecedents, and that it is the appanage of a neuropathic aristocracy." In a chapter on Current Conceptions of Hysteria, White¹⁰ says, "The personality, which is the highest expression of the psyche, the acme of complexity of association in a harmonious psychological synthesis, tends rather easily to fall apart. The associations are not sufficiently strong, sufficiently binding, and it splits up under the influence of certain kinds of stresses. This aptitude for disintegration has both an ontogenetic and a phylogenetic substratum. It is the infantile mentality that is thus affected."

Hysteria minor is quite easily curable. Under careful regulation and reëducation, even the "infantile mentality" will develop maturity of thought and action with economic and social results gratifyingly worth the effort expended.

It may be said of the psychoneuroses in general, especially where there are physical symptoms, shown by careful examination to be more or less obscure as to etiology, that well-chosen psychotherapeutic methods of treatment will, many times, obviate needless operative procedures, and greatly decrease the number of cases of prolonged invalidism. It will often be found that even a defective organ is a negligible factor in the production of the patient's invalidism.

The doubting physician, who has read this paper, may feel that the writer is unduly optimistic regarding prevention and treatment of the psychoneuroses and psychoses.

Interested from the beginning of my medical studies in preventive medicine, it was my good fortune to come early under the influence of Dr. Adolf Meyer and Dr. C. Macfie Campbell. Later, I had the stimulating experience of being associated with Dr. E. E. Southard. I have, therefore, quite naturally looked for the "modifiable factors" in the various symptoms of my patients and treated them accordingly, with gratifying results. Thus, I have made my own experience the basis of my optimism.

The physician with an open mind, who will combine an intimate knowledge of psychopathological literature with practical experience in a hospital or sanatorium for nervous and mental diseases, will soon come to realize that physical conditions affect the mind no more than mental states affect the physical health.

Cases of frank mental disorder do not determine the need for rational psychotherapeutic treatment. Many patients, adults as well as children, do not, for obvious reasons, visit the neuropsychiatric clinics. Few such clinics are available. Many of the most hopeful cases of psychoneuroses and incipient psychoses are often misunderstood, therefore, neglected until cure is difficult, if not impossible, to effect. Psychopathologists, who understand and give equal recognition to the morphological, physiological and psychological influences in the production of disease should be connected with every educational institution, for none will deny that preventive medicine finds its most productive opportunity in infancy, childhood and adolescence. Nowhere can these individuals be so easily reached and helped at the present time as through the schools.

In addition to the references noted throughout this paper, a brief list of helpful publications is given.

I wish here to express my gratitude to Dr. Lawson G. Lowrey for suggesting this particular study of juvenile cases. I also would acknowledge my indebtedness to Mrs. Gerna Saville Walker and her co-workers for the careful follow-up work done on the one hundred cases selected for this study.

74 Fenwood Road, Boston.

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an open mind, the knowledge of psychological practical experience for nervous and mental come to realize that the mind is not the physical health. Disorders do not demand psychotherapy. Its, adults as well as children, as well as the reasons, visit to Few such clinics are most hopeful cases. Psychoses are, therefore, neglected and possible to effect. Understand and give psychological physiological needs in the production of the disease. Connected with error and none will deny that it is its most prominent childhood and these individuals be at the present.

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My gratitude suggests this paper. I also wish to Mrs. Gernard for the early one hundred.

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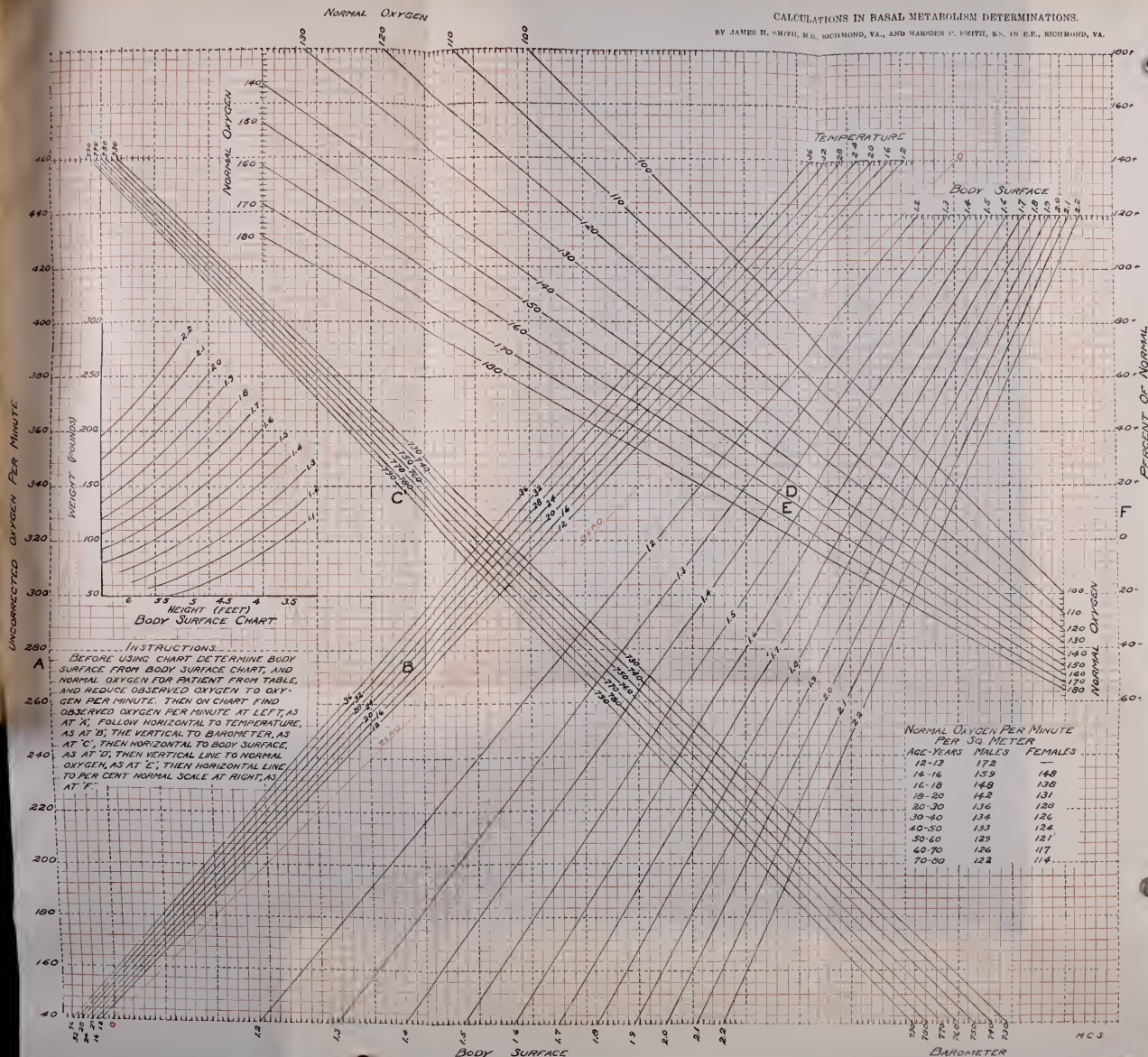
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CALCULATIONS IN BASAL METABOLISM DETERMINATIONS.

BY JAMES H. SMITH, M.D., RICHMOND, VA., AND MARGEN C. SMITH, B.S. IN R.E., RICHMOND, VA.



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CALCULATIONS IN BASAL METABOLISM DETERMINATIONS.

BY JAMES H. SMITH, M.D., RICHMOND, VA.,

AND

MARSDEN C. SMITH, B.S. IN E.E., RICHMOND, VA.

IN adapting the methods of indirect calorimetry to the clinical determination of basal metabolism one of the difficulties encountered has been the amount of arithmetic involved. The use of logarithms of course facilitates the process for those familiar with logarithms. On the other hand it has served only to confuse others whose mathematical training is limited. As evidence of this difficulty a recent paper by McCaskey,¹ includes as one of its objects, "To offer a new and simplified method of calculation which makes optional the use of logarithms." Tables such as McCaskey introduces are of undoubted value in saving time and useless mental effort. His methods refer to the Benedict "portable" respiration apparatus, as does also the following description of a chart or "graph" designed to simplify the calculation.

In calorimetry as applied to nutritional or physiological studies generally, as McCaskey states, by common consent the metabolic rate is expressed in calories per hour per square meter of body surface. As a matter of fact, however, in the clinical use of the method in diagnosis chiefly of thyroid conditions there does not seem to be any special advantage in so expressing it. What the clinician wishes to know is the percentage of normal metabolism the individual is found to have. Since this is true it seems unnecessary to convert oxygen to calories and it is immaterial as to the time factor used in the expression of the final result. It is essential only that all the factors that have been determined to be significant be taken into account in arriving at the percentage of normal. To whatever extent the mathematical process can be simplified to that extent time is saved and the chance of error reduced.

With these ends in view, the chart herein described has been designed. The mathematical principles involved are simple and are, of course, applicable to any variations to be included in the problem, or to any variations one may wish to follow in the order in which the factors are taken into account. For example, the graph does not include lines for the rise of temperature in the spirometer during the test, since the removal of the motor to a place outside the spirometer makes this factor negli-

gible. As will be seen, the factors that are included in the order named are:

C.c. of oxygen used per minute (140-460 c.c.)

(Correction for temperature to 0° C. (12°-36° C.)

Correction of barometer to 760 m.m. mercury (730-790 m.m.)

Reduction of "observed oxygen," corrected as above, to rate per square meter of body surface, the DuBois height-weight scale being used as an insert. (3.5-6.5 ft.; 50-300 lbs.; 1.1-2.2 sq. m.)

The ratio of the figure thus obtained to the normal for age and sex, the latter factor also being shown in the Aub-DuBois table inserted (12-80 years).

Such charts are thoroughly familiar to engineers, and are much used by them under similar conditions.

The same principle underlies the construction of each set of lines in the chart. To illustrate:

Observed oxygen is to be corrected for temperature. If the uncorrected oxygen is 140 c.c. and the average temperature is 12° C, the application of the formula for reduction to 0° C, will give a figure represented on the chart by a point. If the same process is carried out for a different oxygen reading, say 460 c.c., at the same temperature, 12° C, another point is established. When the two points are connected by a straight line, the line represents the reduction from 12° C to 0° C of all variations of the volume of oxygen between 140 c.c. and 460 c.c., inclusive. If these two factors only were to be considered a scale in c.c. of oxygen would appear horizontally along the margin of the chart. The intermediate oxygen readings are not shown on the chart inasmuch as they are of no value, though they are, of course, used temporarily in the construction of the chart.

As indicated in the "Instructions" drawn on the chart, its use is facilitated by first determining the height-weight body surface factor according to the DuBois scale, and next the normal rate per minute for age and sex. With these figures at hand, the point on the left margin corresponding to the observed oxygen per minute is located (as at A) and followed out to the right horizontally to the point where it crosses the observed temperature line (B). From B, in vertical direction (either up or down) intersection with barometric pressure line is sought (C). From C, horizontally to intersect with the line representing body surface (D), from D vertically to intersect with the line representing the normal for age and sex (E). From E horizontally to the right to the final reading (F) in percentage of normal, plus or minus. Interpolations are made as necessary. A reproduction of the chart described is shown

herewith. It is drawn on standard one inch cross section paper, subdivided into tenths, measuring 20 inches by 22 inches, tacked to a drawing board (bread board). It can be drawn on any desired scale. No doubt the most useful modification for the average clinic would consist in a reduction of the outside limits of the various factors. This might result occasionally in the problem falling outside the limits of the chart, but only infrequently, unless the limitations were made too narrow. There are apparent advantages to be obtained in such a modification in greater simplicity and an enlarged scale with increased accuracy without increasing the actual dimensions of the chart. Varied colored inks might be of some assistance to the eye in following out the lines. Transparent triangles or squares such as are used by draughtsmen, are of help in this respect. With a little practice, the process can be carried out very quickly. The chart has been checked by various conventional processes and has been found accurate within one per cent., and useful in practice in the hands of persons of limited experience with the chart.

REFERENCE.

¹ McCusker: Jour. A. M. A., Vol. LXXVI, No. 15, p. 978, April 9, 1921.

Book Reviews.

Hygiene of Women and Children. By JANET E. LANE-CLAYPON, M.D., D.Sc., Dean and Lecturer on Hygiene, King's College for Women; formerly Medical Inspector under the Local Government Board. 354 pages, 71 illustrations. London: Henry Frowde and Hodder & Stoughton.

Dr. Lane-Claypon writes with the purpose of "sounding more loudly the note of individual hygiene" and of assembling in a small volume accessible information especially for "nurses and health visitors." Although she hopes that "individuals will find it of assistance," it is somewhat beyond the mentality of the average woman, except for certain chapters.

There are many excellent illustrations, particularly x-ray photographs showing the feet in proper and improper shoes, charts showing the effect of alcohol on mental efficiency; the conditions of fatigue in school children of different ages in London; charts of calories for various ages of children and women in various industries.

The average woman will find much that is helpful in the chapters on Dust and Dirt, Fatigue, The Feet, Clothing and Feeding of Children after the Age of Infancy.

The trained nurse, social worker and doctor may be particularly interested in the difference to be found in the standards of purity for milk in this country and in England.

Lessons on Tuberculosis and Consumption. By CHARLES E. ATKINSON, M.D. New York and London: Funk & Wagnalls Company. 1922.

This volume contains nearly 500 pages, dealing with almost every phase of tuberculosis from the medical and layman's viewpoint. It might almost be called the "Consumptive's Book of Knowledge."

It consists of sixteen chapters which are called lessons, and contains twenty-one excellent and interesting diagrams and illustrations. The titles of some chapters are of interest, such as the following: "If the Chest Had a Window," "You and Your Physician," "The Secret of Eating to Win," "The Elixir of Health, Fresh Air—Its Use and Abuse," "When Blue Days Come," and others. These titles excite the curiosity, and the information contained therein is of distinct value.

It is hard to form or to express an opinion on this book. One's first impression is that there is too much of it. There are many of us, I believe, who feel that we have gone a little too far in taking the public into our confidence concerning the treatment of disease. Certainly there are many patients who would fail to see the value or need of a physician if they read and digested carefully the contents of this volume. A great deal of space is devoted to explaining, by diagrams and in other ways, the pathology of the tuberculous process in the lungs. I doubt the value of this. There is likewise considerable space devoted to Dr. Russell's method of treatment and to his emulsion. One might well criticise this notice of a proprietary preparation such as Russell's Emulsion and the method of treatment which most of us do not feel is based on sound or logical grounds. There is, however, an immense amount of practical, sound information, providing one can find it.

To read the book through from cover to cover would leave the minds of most of us in a whirl. The patient in a good sanatorium or other institution would not need much of the detailed knowledge which is here given. This book resembles those thousand-page systems of medicine, etc., which undoubtedly contain all the information there is in a given subject, but which said information is so deeply buried and so cleverly concealed as to prevent to a great extent its availability.

There is, to me, a pleasing sincerity and earnestness about the book which I like. I believe the harm it can do by giving too much detail is very little, while on the other hand, it can do much good.

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Established in 1828

Published by The Massachusetts Medical Society under the jurisdiction of the following-named committee:

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CHAPTER 340 OF THE ACTS OF 1922.

HOUSE BILL 1513, which is a mutilation of House bill 955, has been enacted, signed by the Governor, and may be found in Chapter 340.

The original bill was presented by the joint committee on medical education of the Massachusetts Medical Society and the Massachusetts Homeopathic Medical Society under the leadership of Dr. C. F. Painter. The original bill was practically the same as the one presented by the same committee in previous years and was designed to raise the standards of medical education. It provided that applicants for medical registration should be graduates of medical colleges which require of students premedical study equivalent to two years in a college of liberal arts and after a four years' study in medicine to have served one year as an intern in a hospital. As amended the law now requires that a student must possess "educational qualifications required for graduation from a public high school," and be a graduate of a medical school which gives a four years' course, and places on the Board the responsibility of determining the premedical educational qualifications. This feature of the bill is an adroit species of camouflage, for although certificates of courses taken may be submitted, one may never know

whether the individual applicant could have passed the examinations required in a public high school. If such courses were taken under private instructors or in correspondence schools, the Board might be wholly unable to estimate the value of the work done. History is replete with specimens of faked certificates.

Among the duties of the Board the law now requires that examinations shall be conducted in the following subjects: Anatomy, surgery, chemistry, biology, physics, physiology, pathology, obstetrics, gynecology, psychology, practice of medicine and hygiene. The incongruity of obliging the Board to examine in chemistry, biology and physics should be apparent to everybody, for these subjects are among the basic sciences which a student ought to have covered before entering upon the study of medicine. The tendency of modern pedagogy is to develop the mind of the student through a natural sequence of studies. English composition, mathematics and the languages are also valuable, fundamental subjects for study, but no one would expect that a board of examiners dealing with technical matters should be obliged to conduct examinations in such basic subjects. The absurdity, as well as the burden of work imposed, must be apparent to all competent persons.

For these added responsibilities relating to general educational qualifications the legislature has provided no increased remuneration. The Board has always been inadequately paid; but the injustice to the Board is of small consequence compared with the unfairness to the poorly equipped applicant. For example, the low-grade medical school solicits students. The greater interest in such schools centers in the fees exacted rather than in the development of efficient doctors. The minimum amount of instruction is given. Is it not pertinent to ask whether such schools will require of students sufficient training to prepare them for the State Board examinations? Do not the catalogues of such schools fail to point out the obstacles in the path of the boy who is induced to take up the study of medicine with the confident expectation of being able to secure the right to practice? One would have expected that even those members of the legislature who have been denied the privileges of a liberal education would see the injustice of leading a boy through the intricacies of medical study up to other obstacles, not in the medical curriculum, which he must overcome before he can secure the right to practice. The pathos of the situation would appeal to some individuals if the disappointments of many of these graduates of Class C schools could be witnessed. In some instances time and money have been wasted.

Simple justice and human kindness should have led our legislators to have told every prospective student of medicine that before he can

receive state recognition he must have had a reasonable education, both for his own good as well as for the safety of the people. As it is now, a large proportion of the graduates of Class C schools fail repeatedly to meet the simple (almost elemental) requirements of our State Board, as shown by the reports for the last year, for example. For the ten graduates of the Boston College of Physicians and Surgeons, only two secured registration on the first examination. The record of other graduates of this school, examined last year, showed that one applicant has failed four times, one was registered on the fourth trial and one on the second. There are two other schools in this State with records almost as bad.

The opponents of the original bill were largely represented by persons interested in these Class C schools. The opposing lobby was active and persistent, and overcame the efforts of some of the members of the Committee on Public Health who worked hard to secure the passage of a better bill. There were also some other members of the legislature who tried to mould opinion favorable to higher standards, but supporters of the Class C medical schools in Massachusetts appear to have more influence with the majority of our legislators than those who are recognized throughout the country as representing ambitions for progress.

The arguments against higher requirements range all the way from appeals for the opportunity of the poor boy up to denunciation of the medical trust and the American Medical Association. Even the Peter Bent Brigham and the Massachusetts General Hospitals are not left out of the opposing arguments, and Harvard College is made to appear as the sinister influence which would stifle the ambitions of every youth who might seek training elsewhere.

At the present time the attitude of the people of Massachusetts, as shown by a majority of their representatives, is distinctly hostile to any great forward step in medical education. Fortunately those in the medical profession who are ambitious for better service for the people are not dismayed or discouraged, for this opposition is simply a phase in evolution and is due to temporary indifference, lack of understanding and poor reasoning. The remedy lies in education. Well equipped physicians are not personally affected. The people at large are the real sufferers and in time will turn from the false prophets. Before many years Massachusetts will stand with the forty-five other states which have risen to higher ideals.

THE DOCTOR AS A WITNESS.

THE giving of testimony in a court has been a trying experience to physicians on many occasions. One ought to be familiar with court

procedure and the rules of evidence, and have a high degree of self-control before seeking opportunities to pose as an expert. The character of a person stands out impressively on the witness stand. The qualities of honorable intention or partisan bias are accentuated under the importunities of counsel, and the person who can emerge from the ordeal with credit has achieved distinction.

Unfortunately, it sometimes happens that a physician is in possession of information which has value for a litigant, but having come into possession of the facts by reason of confidential professional relations, he would prefer to be excused from making this public. As an example, two physicians were employed by a woman who was in need of advice. According to published accounts, she made statements to these physicians in the course of medical examinations which, if known to the opposing counsel, could be used to her disadvantage. During the trial, counsel sought to put in the evidence, the statements made by this woman to the physicians. The physicians were reluctant to testify on the ground that the information conveyed was confidential, and in justice to the patient felt that they should be permitted to refrain from divulging knowledge obtained in this manner. They were instructed that they had no rights in the matter and must give the testimony, which was then presented. The matter was exploited in some newspapers, and the alleged opinion of an eminent surgeon of Boston, not connected with the case, was published. This surgeon condemned the physicians for giving the testimony in question. This brings to mind the criticism of an osteopathic physician for giving testimony reflecting on the integrity of a patient not very long ago.

The profession should clearly understand that the courts do not give a doctor any right to withhold facts, even though obtained through the confidential relations of the physician and patient. Lawyers are privileged and cannot be made to disclose information imparted by a client. The criticism of these physicians by other physicians is not in order. They were in the hands of the court and had no discretion in the matter. However deeply we may feel that the honor of the profession demands absolute silence when the character of the patient is in question, this can apply only to matters outside the courts. We may, perhaps, feel a degree of resentment that the lawyers have an advantage which we do not possess, but it is the duty of every loyal citizen to uphold the courts although we may at times feel that the interpretation and application of law is subject to human imperfections. When in court, a physician is subject to the authority of the law just as much as any other person, and however much he may at times have reason to deplore the humiliation imposed, any refusal to

testify when directed by the court, is futile and senseless. It will be well for critics of our professional brethren to exercise charity, for one can never be sure of escaping unpleasant experiences in court.

A word of caution may be in order. Many compromising situations might be avoided if a possible witness would exercise discretion in conference with attorneys before the trial takes place. Lawyers will make every lawful use of all information favorable to their clients. If there is anything which by reason of professional confidence one does not want to disclose, do not tell it to anyone until directed by the court. If one is willing to tell it to a lawyer he may be obliged to repeat his information in court subject, of course, to the rules of evidence.

NEWS ITEMS.

THE ITALIAN MEDICAL SOCIETY of Massachusetts held a social and scientific meeting at the Copley-Plaza Hotel on Friday, April 28. Toastmaster, Dr. Gaetano Praino; paper by Comm. Antonio Stella, M.D., of New York City, on "Pulmonary Syphilis"; discussion by Dr. E. O. Otis and Dr. G. Balboni. Remarks apropos by Comm. Rocco Brindisi, M.D.

MEETING OF THE MASSACHUSETTS ASSOCIATION OF ASSISTANT PHYSICIANS.—The 54th meeting of the Massachusetts Association of Assistant Physicians of the Department of Mental Diseases was held at the Waverley School for the Feeble-minded, Waverley, Mass., on Wednesday, April 26, 1922. The attendance was large—71 members and their wives being present. Those arriving early had the opportunity of observing the dental clinic of ten operators, in charge of Dr. A. G. Richburg, Assistant Professor of Clinical Dentistry, Tufts Dental School. The buffet luncheon was followed by a short business meeting, which was conducted by the President, Dr. Ralph M. Chambers.

The program was of great interest. Dr. C. S. Raymond presented a group of nine morons of high grade and briefly summarized their physical characteristics, their varied reactions in their communities, and the many difficulties of diagnosis. Dr. A. G. Richburg then gave the history of the dental clinic and described in a general way the various operations, totaling 14,213 over the last five-year period. The problems of the physicians conducting the school clinics for classification of the feeble-minded were then discussed by Dr. Esther Woodward. In closing the program, Dr. W. E. Fernald spoke of the world-wide interest in the Massachusetts School Clinics and brought out the immense value to the State, in future years,

of this catalog of potential delinquents. An inspection of the school and the various industrial activities concluded a most enjoyable day.

NEIL A. DAYTON, M.D., *Secretary*.

THE DORCHESTER MEDICAL SOCIETY.—A meeting was held on Wednesday, April 26, 1922, at 8.30 p.m. Officers were elected for the ensuing year. Dr. Joseph I. Grover read a paper on "Anaphylaxis in Children." He discussed asthma, eczema, hay-fever, urticaria and angio-neurotic edema, and explained the technique of the skin tests for proteins. The usual collation followed.

STAFF MEETING OF WORCESTER STATE HOSPITAL.—Dr. Lydia J. Pierce, Pathologist at the Westboro State Hospital, was the speaker at the regular staff luncheon at the Worcester State Hospital. The subject of her discourse was "Blood Chemistry." After the paper, a full discussion took place.

WILLIAM A. BRYAN, *Superintendent*.

PROF. WILLIAM DUANE of the Department of Physics of Harvard University, has been awarded the John Scott medal and certificate, with premium of \$800, by the Board of Directors of City Trusts of Philadelphia, for his researches in radioactivity and x-rays. The award is made annually for scientific achievement, in accordance with the terms of a bequest over a century ago by John Scott. Last year the winner was Mme. Curie.—*Medical Record*.

BOSTON DEATH RATE.—During the week ending April 29, 1922, the number of deaths reported was 240 against 203 last year, with a rate of 16.38. There were 28 deaths under one year of age against 27 last year.

The number of cases of principal reportable diseases were: Diphtheria, 65; scarlet fever, 52; measles, 227; whooping-cough, 4; tuberculosis, 38.

Included in the above were the following cases of non-residents: Diphtheria, 6; scarlet fever 10; measles, 2; tuberculosis, 3.

Total deaths from these diseases were: Diphtheria, 1; scarlet fever, 1; measles, 1; tuberculosis, 23.

Included in the above were the following cases of non-residents: Diphtheria, 1; tuberculosis, 3.

THE NEW YORK CITY Department of Health has been conducting an anti-spitting campaign. Out of 1,375 arrests, 1230 were fined. The total fines amounted to \$2,281.

MR. ARTHUR D. HOLMES, formerly chemist with the E. I. duPont de Nemours Co., is now employed by the E. L. Patch Company of Boston and will establish a laboratory for the prosecution of biological and physiological research.

Miscellany.

THE SCHICK TEST IN ENGLAND.

ACCORDING to the *Medical Press*, the Schick test has been given little attention in England, although it is conceded that the experience in America warrants its use. In referring to "the only instance" where this test was given a fair trial, one of the members of the Lambeth Board of Guardians characterized the action of the medical officer who used the test as "a monstrous outrage." The action of the medical officer, however, seems to have been justified, for although two deaths from diphtheria had occurred among the children in the Guardians' school, after the test had been applied no deaths occurred.

REPORT OF THE COMMITTEE ON PUBLIC HEALTH OF THE MASSACHUSETTS MEDICAL SOCIETY.

IN consequence of the report and recommendation of the Committee of the Massachusetts Medical Society "to investigate health problems in relation to the care of the sick in rural communities," and as a result of the discussion of that report and the recommendations by the Council of the Massachusetts Medical Society, the Council of the Massachusetts Medical Society directed the Committee of public Health to prepare a report outlining in some detail any plan for financial expenditure. It was furthermore suggested that any plan of the Committee on Public Health be printed in the BOSTON MEDICAL AND SURGICAL JOURNAL.

The Committee on Public Health of the Massachusetts Medical Society has, within the limits of its appropriation from the Society, undertaken certain definite lines of activities during the last ten years. The Committee has attempted to alter the scope of its activities in line with the most promising fields. Within the last two years, the Committee has attempted to spread information concerning the diphtheria problem, more particularly concerning the value of the Schick test, and toxin-antitoxin immunity, by means of demonstrations, reports in the MEDICAL JOURNAL, etc. The Committee has felt that such an activity was a very desirable service to the members of the Massachusetts Medical Society, and to the community at large. The Committee hopes to be able to con-

tinue this type of activity along similar lines. The Committee has already collected considerable data concerning the apparent value of this type of activity and the apparent need for it.

The Committee is entirely willing, if the Council directs, to undertake certain activities in the general field of health problems in relation to the care of the sick in rural communities. The Committee appreciates, however, that this problem does, or does not, come under the general heading of public health activities, depending upon the definition of Public Health. The Committee feels that the medical and health problems of rural communities deserve a great deal of careful study. The Committee is not at all clear as to the precise relative importance of this problem in which there are certain general economic factors which are well beyond the power of any single group, such as the Massachusetts Medical Society, to solve. If the Council directs, the Committee will, of course, be glad to undertake a survey of the rural problems of the State. The Committee wants to emphasize the fact that this problem is a very complicated one and that the approach to this problem must be entirely tentative and experimental. The Committee would like to emphasize, furthermore, that it does not feel it is in a position to recommend the expenditure of the funds of the Society for work in rural health as more important than many other possible forms of activity in which the Society might be interested.

The Committee feels, however, that there is a very definite obligation on the part of the Massachusetts Medical Society to the members of the Massachusetts Medical Society who are practicing medicine under the well-known difficulties of the rural communities. The Committee believes that a proper field agent could undoubtedly accomplish a great deal, directly and indirectly, for the advantage of the rural communities. The data collected by such a field agent would be of direct service to the practitioners of the Massachusetts Medical Society, because there would be some means, perhaps mainly through the BOSTON MEDICAL AND SURGICAL JOURNAL, of the interchange of valuable suggestions between isolated practitioners who are meeting the same problems in presumably different fashions. The Committee feels that indirectly these data might be of great benefit in the establishment of some policies in regard to the rural communities which might have the support of the Medical Society. These policies would include obviously the problems of the encouragement of the establishment of small central hospitals according to the needs, and the developments and utilization of certain facilities, such as laboratory facilities, for the benefit of the local practitioners, and thereby of course, of the local communities. The Committee appreciates that this is a very bare out-

line of a plan, but submits it for consideration. The Committee feels that the sum of \$5000 would be necessary for the payment and expenses of such a field agent.

For the Committee,

ANNIE LEE HAMILTON, *Sec.*

SAMUEL FULLER MEMORIAL.

THE attention of members of the Massachusetts Medical Society is herewith called to the following plan which has been formulated for the Samuel Fuller Memorial:

As long ago as February 10, 1916, the late Dr. Thomas F. Harrington published a piece of correspondence in the *JOURNAL*, on "The Surgeon of the Mayflower," sketching the life and services of Dr. Samuel Fuller and suggesting that recognition should be given to him by the medical profession at the celebration of the Pilgrim Tercentenary.

Early in 1921, Dr. Charles H. Bangs published in the *JOURNAL* a more extended article on "Dr. Fuller, the Pilgrim Physician." At the meeting of the Council of the Massachusetts Medical Society in June, 1921, Dr. Bangs urged that "the Massachusetts Medical Society take steps in this tercentenary year to make a suitable memorial to that eminent pioneer physician." Accordingly, Dr. Bangs, with Dr. G. O. Ward of Worcester, Dr. Myles Standish of Boston, and Dr. E. D. Hill of Plymouth, were appointed a committee under the chairmanship of Dr. R. M. Green, to consider some suitable memorial to Dr. Fuller.

At the meeting of the Council on October 5, 1921, this committee reported that it had considered several propositions, but was unanimous in recommending that the memorial should take the form of a fund to be known as the Samuel Fuller Memorial Fund, to be applied to the establishment of a bed or ward at the Plymouth Hospital. This report of the committee was referred to the Committee on Membership and Finance, which, on February 1, 1922, again reported to the Council, approving the project but not recommending an appropriation of money from the treasury of the Society. The Council thereupon voted to accept the recommendations of the committees and delegated further action on the Samuel Fuller Memorial to the original committee in conference with the President of the Society.

In accordance with this action, the Samuel Fuller Memorial Committee now appeals through the *JOURNAL* to the medical profession for subscriptions of not more than five dollars to the Samuel Fuller Memorial Fund. These subscriptions will be acknowledged in the *JOURNAL* and by suitable certificate to each subscriber. The fund will be held in trust by the committee, its progress regularly reported

to the Council and the Society; and when it has reached sufficient size, it will be presented by the Society to the Plymouth Hospital as the Samuel Fuller Memorial, for the endowment of a free bed or ward, the income only to be used for its maintenance.

The life and service of Dr. Samuel Fuller to his community, in which he was the pioneer Pilgrim physician, should be familiar to all. It is the earnest hope of the committee that a generous response will be made by the Massachusetts profession to enable the establishment of a worthy memorial.

For the Committee,

ROBERT M. GREEN, *Chairman.*

Subscriptions should be sent to Dr. Robert M. Green, 496 Commonwealth Avenue, Boston.

STAFF CLINICAL MEETING, MASSACHUSETTS GENERAL HOSPITAL, FEBRUARY 13, 1922.

Nerve Department, Dr. E. W. Taylor presiding.

The first paper of the evening was given by Dr. Stanley Cobb, who said that epilepsy has often been considered an "idiopathic disease." He said that sometimes no pathology is discovered at autopsy, but the idea that this is usually the case is erroneous, because State Hospital statistics show that from 50 to 75 per cent. of the autopsied cases have gross brain lesions. Microscopic examinations reveal gliosis in nearly 30 per cent. of epileptic brains (charts shown).

The gross brain lesions found at these autopsies are variable. Often there is hemiatrophy of a cerebral hemisphere, an area of gliosis in the cortex, an old cyst of softening, or old adhesions indicating previous hemorrhages accompanied by gliosis. This indicates that probably Southard's theory of an "epileptogenic focus," where the reflex arcs are "simplified" by either aplasia or gliosis, is the best theory so far put forward. (Lantern slides shown of these various lesions.) Other evidence that aplasia facilitates convulsive phenomena is indicated by the fact that children, whose brains are not yet fully myelinated, more frequently have convulsions than adults; also the fact that feeble-minded individuals are prone to convulsions.

Another misconception often held concerning epilepsy is in relation to the inheritance of the disease (if it may be called a disease, better perhaps a "syndrome" arising on various pathological backgrounds). The old figures concerning inheritance indicated that there was positive family history of epilepsy in nearly 50 per cent. of the cases. Certain authors have made it even more. More recent work has shown this percentage to be only 4 to 6 per

cent., and this work is more reliable because it has been studied by looking up the offspring of epileptic patients rather than relying on the family history of patients.

All these facts indicate that there is probably more pathology in the brains of epileptics (meningitis, encephalitis and gliosis) than was formerly believed, so we should think of the infections and traumata of childhood as possible etiological factors and not hold the old conception of a mysterious idiopathic malady. The more recent work of starving these patients—which has shown such beneficial results in certain cases by stopping the convulsions for long periods—is probably a means of reducing the susceptibility of the whole organism to convulsions rather than an actual effect on the fundamental cause of the disease.

In answer to a question by Dr. Ayer in regard to the distinction between epilepsy with focal lesions and the idiopathic group, Dr. Cobb said that many more cases in State Hospitals showed pathology, due to the fact that many in that group have old injuries, scars, etc., but he believes that with more autopsies and improved examinations more cases will be found showing pathology, and that the subject should be further investigated.

Dr. Hugo Mella next spoke on the Parkinsonian Syndrome. The most modern theories of the mechanisms involved in motility were first discussed, the work of Ramsey Hunt, C. and O. Vogt, L'Hermitee, and Kinier Wilson being referred to.

The static component of motility was dwelt upon and the point made that the Parkinsonian Syndrome should be placed in this system as the striatum (caudate nucleus and putamen) and pallidum, in which lesions can be demonstrated in this syndrome, have the control of posture and associated movements as their chief functions.

The Parkinsonian Syndrome may be of the juvenile type or of the senile type. It is frequently impossible to determine the etiology, but it may follow on manganese poisoning in glass, glazed brick and bronze workers, on lead poisoning, on syphilis of the central nervous system, on encephalitis lethargica, on typhoid, or may follow traumata.

It is characterized by a general immobility, loss of normal associated movements independent of muscular rigidity, fine rhythmical tremors during rest which cease during sleep and usually muscular rigidity, although any group of these, and numerous minor symptoms and signs may be absent and still the diagnosis of so-called paralysis agitans be evident.

The treatment is palliative, barbital at times giving some relief from the tremors, hyoseyamus, potassium iodide and chlorotone were of no benefit, but fluid extract of gelsemium has been found useful by Dr. Stanley Cobb in

moderately advanced cases. It gave no relief in very advanced cases at the Long Island Hospital, Boston, whereas sodium cacodylate in large doses did.

Experimental work on the striatum and pallidum now being carried on in the Department of Neuropathology at Harvard Medical School was touched upon.

Following Dr. Mella, in discussion, Dr. W. J. Vivian, assistant surgeon, U. S. Public Health Service, presented the following case: Patient, age 25, was admitted to the U. S. Veterans' Hospital No. 44, with a diagnosis of paralysis agitans. The family history shows an entire absence of any mental or nervous disorders. Early life and medical history uneventful until seven years ago, when he contracted malaria and received intensive treatment with quinine. By occupation he was an auto mechanic and so far as can be ascertained, there has been no contact with manganese. He served in the Navy during the war and his medical history there gives a "chaneroid" infection followed in two months by a coppery rash. He received salvarsan and mercurial treatment for about two months, when the blood became negative. Wassermanns taken during this time were one plus on three occasions and two plus on the fourth. Spinal fluid negative.

Eighteen months ago he first noticed a weakening and stiffness of the left arm, associated with tremor. Progress was gradual, and the right leg, right arm and left leg came next in order of involvement.

At the present time he presents the following picture: Face expressionless, with washed-out appearance; head and shoulders bent forward; propulsive type of gait; lack of normal association in arm and leg movements; diadochokinetic movements poorly sustained and dwindle to a tremor; coarse and fine tremors of legs, arms and hands, at times quite marked when at rest. No intention tremor. There is a pronounced rigidity, at times, of cart-wheel type, also some spasticity. There is stiffness and fatigability of the jaw muscles, he is unable to chew meat. A somewhat atypical finding is ankle clonus on the right. Wassermann on blood and spinal fluid negative. No cells, globulin or abnormal albumin, and the gold sol is negative.

The disease has been progressive with, however, some amelioration of symptoms under sodium cacodylate and hyoseyamine treatment.

The next paper, by Drs. J. B. Ayer and M. Freemont-Smith, consisted of a preliminary communication of twenty cases of neurosyphilis presenting gastrointestinal symptoms, in which three groups may be recognized: (1) Frank crises, gastric or intestinal; (2) Milder forms of gastrointestinal disorders, commonly spoken of as "indigestion"; (3) Cases giving the

symptoms of Group 1 or 2, in whom organic disease (ulcer, cancer) also exist.

In the first group the diagnosis is usually apparent. In the second and third groups it is often difficult. For example, hypoauidity and localized gastric spasm as shown by the barium x-ray are frequently found in tabes, but in a patient not obviously tabetic may pass for organic disease of the stomach. While operations, based on a mistaken diagnosis, are not now common in the case of frank crisis, there is a real possibility of operating upon the patient showing milder degrees of disturbance who is not obviously tabetic, and on the other hand, operation is occasionally withheld in the case of a frank tabetic who also has organic disease, as was the case in one patient of this series.

Emphasis was laid upon the early signs of tabes as seen in this group, namely, irregular or Argyll-Robertson pupils, absent Achilles jerks, hyperaesthesia on the back, and positive spinal fluid findings. Reliance for diagnosis should not be placed upon the knee-jerks which may be present, or upon the blood, which frequently shows a negative Wassermann reaction.

In discussion, Dr. George W. Holmes said that he agreed almost entirely with what had been said. He said that x-ray men ought to know whether tabes was suspected. He looked up the cases in the hospital some five years ago, and was able to find 18 cases which apparently had syphilis of the stomach. A few of these cases had anti-syphilitic treatment and the lesion improved.

Dr. A. S. Merrill emphasized the following points: positive and suggestive signs of gastric ulcer. Value of the latter in roentgen interpretation. Value of pre-x-ray knowledge of clinical suspicions of tabes in differentiating suggestive variations from the normal. Citation of cases showing relative frequency of abnormal variations; example: changes in peristalsis, 64 per cent. Irregularities (? spasmodic or organic), 45 per cent. Changes in tone, 27 per cent. Gastric delay, 20 per cent. Hypermotility, 20 per cent. Local tenderness, 20 per cent.

Similarity of abnormalities seen to those due to other causes of reflex gastric irritation. Some of the other causes of same abnormalities; example: acute gall-bladder, acute appendix, pancreatitis, peritonitis, *i.e.*, any abdominal or pelvic pathology outside of the g.i. tract.

Differentiation between tabes and other causes of reflex irritation more difficult than between tabes and ulcer.

The next paper was on the subject of Pernicious Anaemia with Early Signs from Cord Lesions, by Dr. Henry Viets. Dr. Viets spoke of two points that seemed to be of increasing importance in our knowledge of the relations between diffused combined degeneration of the spinal cord and pernicious anaemia. In the

first place, a review of the literature shows that only in recent years has emphasis been placed upon the importance of the cord lesions in pernicious anaemia. Addison's original description (1855) did not mention cord symptoms, and Lichtheim (1886), who described the first case of cord lesions, thought that they were tabetic degenerations associated with anaemia. About ten years ago Cabot found cord lesions in 84 per cent. of his autopsies, but only 10 per cent. of his 1200 cases showed clinical evidence of cord degeneration, except paresthesia. The latest records seem to indicate, however, that about 80 per cent. of the cases show clinical signs, if specially sought for, of cord degeneration, and about 12 per cent. of cases present major symptoms referable to the spinal cord.

Secondly, efforts are being made to establish the diagnosis from the cord and other signs, before the blood picture changes enough to make the diagnosis certain. One case has been reported recently with marked cord symptoms for three years before the blood showed evidence of pernicious anaemia. Diffuse combined degeneration, therefore, either of the spastic or the tabetic type, may exist well in advance of the blood changes, and a highly probable diagnosis can be made from this sign practically alone. The diagnosis is also more frequently made with fewer changes in the blood picture than formerly, and more emphasis is being laid on other signs and symptoms, such as the periodic sore mouth and the achylia. Many more cases than formerly, moreover, of obvious combined degeneration are being considered as due to pernicious anaemia. Twenty years ago, Russell, Batten and Collier were doubtful if any of their seven autopsied cases were due to this disease, and Putnam and Taylor reached nearly similar conclusions. On the other hand, Collier, in 1921, considers, with most other workers, that many of the cases of this cord disease are associated with pernicious anaemia. It is possible, moreover, that there is a clinical type of combined degeneration that is always found associated with pernicious anaemia. It is hoped that this type may be discovered in certain cases before the blood pictures show many significant changes.

Dr. T. H. Townsend then read the following case history illustrating the points indicated above, from the records for the Nerve Service of the Hospital. Mrs. F. E. C., 45, housewife, entered the M. G. H. January 6, 1922, with the following history: For four years she had numbness and tingling in the fingers of both hands. For two years she had the same disturbance of sensation in her toes and feet. For four months she had been having a great deal of difficulty in walking because of the stiffness and unsteadiness of her legs. She had had occasional short spells of diarrhea during the

past four years. For the last few days she has not been able to walk at all, and she had slight urinary retention and incontinence of feces.

General physical examination not remarkable. Neurological examination showed: Cranial nerves: no disturbance. Fundi normal. Arms—slightly impaired position sense of fingers. Vibration sense slightly defective: touch, pain and temperature senses normal. No motor disturbance. Reflexes normal. Trunk: Abdominal reflexes absent. No motor or sensory disturbance. Legs: marked ataxia with slight spasticity. Marked impairment of position sense of toes and feet. Marked loss of vibratory sense. Definite motor weakness, but all motions possible. Touch, pain and temperature senses normal. Knee-jerks not obtained. Ankle-jerks not obtained. No Babinski or clonus. Unable to stand alone because of ataxia. Sphincters: retention of urine and slight incontinence of feces. Blood: hemoglobin 70 per cent. (Tallquist). Red cells: 3,200,000-3,600,000 per cu. mm. White cells: 9,000-13,600 per cu. mm. Platelets: 160,000 per cu. mm. Differential count: Polymorphonuclears 75 per cent., lymphocytes 16 per cent., large mononuclears 8 per cent., eosinophils 1 per cent. Red cells showed no achromia, distinctly increased variation in size. Majority of cells seemed larger than normal. A few microcytes were seen. No normoblasts. Wassermann negative.

Gastric Analysis	Free H. C. L.	Total Ac.
Fasting contents	0 5 cc. N/10 NaOH	Guaiaec Neg.
Test meal	0 10 cc. N/10 NaOH	Guaiaec Neg.

Gastrointestinal X-ray—No evidence of organic lesion found. Lumbar puncture, 10 cc. clear colorless fluid. Pressure, 70. (—5 cc.) 50. (—5 cc.) 30. Hydrodynamics normal, cells 1 per cu. mm. Alcohol normal. Am. Sulph. = 0. Wassermann = negative. Total protein = 32. Urine-Stools normal.

LEGISLATIVE MATTERS.

HOUSE 1602, a redraft of House 598. An Act Providing for the Registration of Medical Students for the Limited Practice of Medicine, adds to the present law the following new section:

Section 9A. An applicant for limited registration under this section as an assistant in medicine, who shall furnish the board with satisfactory proof that he is twenty-one years of age or over, and of good moral character, that he is enrolled in and has creditably completed not less than two years of study in a legally chartered medical school having the power to grant degrees in medicine, and that he has been assigned to the care and observation of persons requiring medical service by an instructor in said medical school, which instructor shall be a registered physician, may, upon

the payment of one dollar, be registered by the board as an assistant in medicine for such term as it may prescribe. Such registered assistant in medicine may practise medicine, but only under the supervision of such instructor; he may, however, be assigned by such instructor to a hospital, recognized and approved by such instructor, of not less than twenty-five beds, and may practise medicine as aforesaid in said hospital, but only under the supervision of a registered physician who has been duly appointed a staff physician in said hospital. Registration under this section shall not authorize the signing of certificates of births or deaths or the use of any instruments whatsoever in the treatment of cases, except instruments normally used for the purpose of diagnosis, and then for such purpose only; nor shall it authorize the prescribing or dispensing of any narcotic drug, as defined in section one hundred and ninety-seven of chapter ninety-four. Registration under this section may be revoked at any time by the board, and shall be revoked upon the request of the dean of the medical school in which such assistant in medicine is enrolled. Termination of such enrolment shall operate as a revocation of such registration.

House 1605 provides for an increase in the membership of the Industrial Accident Board from six to seven.

HEALTH PROMOTION WEEK.

GOVERNOR SMALL of Illinois has issued his proclamation designating May 7th to 13th, inclusive, as Health Promotion Week throughout the State.

The Governor asks that the people make it a time for general and whole-hearted participation in the exercises and programs which have been prepared.

The week will open on Sunday, the seventh, with health sermons from the pulpits of the churches of all denominations. Monday and Tuesday will be birth registration days, in which every effort will be made to exploit and promulgate the importance of birth registration. It is believed that, with proper efforts put forth along these lines this year, the State of Illinois can take its place among the registration states as to births. Wednesday, better babies and milk pasteurization; Thursday, vaccination; Friday, schools—medical examinations and general child welfare work; Saturday, clean-up and paint-up day.

Governor Small suggests and urges that the local health officials and heads of civic and religious organizations communicate freely with the State Director of Public Health as to advice and help that may be needed in carrying on their campaigns.—*Bulletin Chicago School of Sanitary Instruction.*

TESTIMONIAL TO DR. GEORGE E. DE SCHWEINITZ.

A BANQUET was tendered Dr. George E. de Schweinitz of Philadelphia by the Philadelphia County Medical Society on the evening of April 4 in honor of his election to the presidency of the American Medical Association. The speakers included, in addition to the honored guest, Dr. J. Norman Henry, President of the Philadelphia County Medical Society; Dr. Edward Martin, Pennsylvania State Commissioner of Health; Dr. Hubert Work, President of the American Medical Association and Postmaster-General of the United States; former Surgeon-General Dr. William C. Braisted; Dr. Ross V. Patterson, Dean of Jefferson Medical College, and Dr. John G. Clark, Professor of Gynecology in the University of Pennsylvania. By arrangement, the subjects discussed had to do mainly with medical education, preliminary or preparatory, undergraduate, and post-graduate, including a form of university extension. Dr. Hobart A. Hare acted as toastmaster.—*Medical Record.*

SUIT AGAINST DR. HENRY COLT.

THIS action grew out of surgical treatment for a broken arm. The plaintiff sued for \$10,000. Dr. Colt was defended by Mr. Saltonstall, Counsel for the Massachusetts Medical Society. After a deliberation of fifteen minutes, the jury found for the defendant. If Dr. Colt had compromised in order to avoid publicity, such suits would have been encouraged. The Doctor has rendered a service to the profession in defending himself. Unless there is clear evidence of liability, every suit of this nature should be contested.

BOSTON CHAPTER BOOMS HOME HYGIENE CLASSES.

THE Boston, Mass., Metropolitan Chapter had 963 students under instruction in classes in Home Hygiene and Care of the Sick at the end of February. Nine new classes were formed during the month, with 181 students. Two of the new classes were at Miss Wheelock's School for Training Kindergarten Teachers, and each student who passes the examination will receive one point credit from the School.

At the request of Prof. C. E. Turner, of the Massachusetts Institute of Technology, the Chapter's Supervisor of Courses in Home Hygiene and Care of the Sick has begun a course of lectures in Professor Turner's course on Public Health, and how to teach Home Hygiene and Elementary Care of the Sick.—*Red Cross Courier.*

The Massachusetts Medical Society.

MEMBERSHIP CHANGES FOR THE MONTH OF APRIL, 1922.

Official List (3d).

Compiled by the Secretary of the Society.

- Adams, Donald Stansbury, Worcester, now 28 Pleasant St.
 Allen, Arthur Wilburn, from Cambridge to Brookline; office, Boston, 99 Commonwealth Ave.
 Ball, Arthur Nelson, from Northampton to East Gardner, State Colony.
 Belisle, Eugene Simeon, Worcester, now 151 Grand St.
 Benson, Clarence Kirk, from Brighton to Dedham, 8 Church St.
 Bicknell, Ralph Emerson, Swampscott, now 79 Burhill St.
 Blair, Orland Rossini, from Springfield to Northampton, State Hospital.
 Boch, Joseph, from Whitman to Berlin N. W. 52, Germany, Thomasinstr. 13.
 Brearton, Edward John, died at Dorchester, April 15, 1922, aged 44.
 Breck, Samuel, now Brookline; office, Boston, 238 Newbury St.
 Cassels, Louis Raymond, Worcester, now 3 Linden St.
 Clark, De Witt Scoville, Salem, now 2 Oliver St.
 Coburn, Horace Fordyce, Delete "Horace" from name. From Lowell to Wilton, N. H.; office, Brookline, Mass., 7 Euston St.
 Cochran, William James, Natick, now 15 West Central St.
 Cooper, Olive Alfreda, from Boston to Revere; office, Medfield, Medfield State Hospital.
 Cort, Parker Martin, from Westfield to Springfield, 175 State St.
 Chadbourne, Arthur Patterson, from Washington, D. C., to Denver, Colo., U. S. Veterans Bureau.
 Crawford, Francis Xavier, from Boston to Cambridge; office, Boston, Long Wharf, United Fruit Co.
 Dayton, Neil Avon, from Westborough to Wrentham, Wrentham State School.
 Donoghue, John Joseph, Worcester, now 10 Vernon St.
 †Dow, James Arthur, from Belmont to Cambridge, 361 Harvard St.
 Ducharme, Alphonse Napoleon, Worcester, now 40 Hamilton St.
 Duval, Leon Emile, from East Gardner to Worcester, Worcester State Hospital, Summer St.
 Edmunds, Fred Andrew, Endicott, N. Y., now 1804 Main St.
 Emerson, Kendall, Worcester, now 21 High St.
 Feeley, Walter Clarence, Cambridge, now 859 Massachusetts Ave.
 Finnerty, Charles William, Cambridge, now 75 Bristol Road.
 Fipphen, Clarence Wyman, Shrewsbury, now Main St.
 Gerrard, Clarence Charles, Springfield, now 193 Pine St.
 Goddard, Fred Chambers, Uxbridge, now Capron St.
 Greene, Ransom Alphonso, from Hathorne to Boston, Room 109, State House.
 Grimes, Loring, Swampscott, now 84 Humphrey St.
 Haggart, Gilbert Edmund, from New York City to Boston, Massachusetts General Hospital.
 Harkins, John Francis, Worcester, now 905 Park Bldg.
 Hart, Francis Denbroeder, Worcester, now 51 Midland St.

Hartwell, John Bryant, Colorado Springs, Colo., now 327 Burns Bldg.
 Hayes, Frederick Legro, Brookline, 423 Harvard St., no Boston office.
 Holland, John Alexander, from Ashburnham to East Gardner, State Colony.
 Hunt, Daniel Lawrence, Boston, now 10 Postoffice Sq., Room 55.
 Knowlton, Edward Allen, Holyoke, now 265 Maple St.
 Leeper, Marion Eleanor, of Northampton, died at Springfield, April 20, 1922, aged 40.
 Lincoln, Merrick, Worcester, now 3 Irving St.
 MacKay, George Finlay, Dalton, now 695 Main St.
 Mains, Herbert Llewellyn, Danvers, now 74 Holten St.
 Malone, Charles, Jamaica Plain, now 46 St. John St.
 Marble, Henry Chase, Boston, now 270 Commonwealth Ave.
 McPherson, George Edwin, from Boston to Belchertown, Belchertown State School.
 Mead, Frederick Ammi, Willimansett, now 30 Emerson St.
 Mulhern, Joseph Patrick, Worcester, now 3 Perry Ave.
 Nugent, Arthur John, Worcester, now 627 Main St.
 O'Meara, John William, Worcester, now 390 Main St.
 Osborne, Stanley Hart, Hartford, Conn., now State Department of Health.
 O'Sullivan, Anna, Boston, now 145 Newbury St.
 Packard, Fabyan, now Westford; office, Graniteville.
 Parker, George Leonard, Clinton, now 20 Haskell Ave.
 Partington, Cyrus Brown, Denver, Colo., now U. S. P. H. Service.
 Pemberton, Frank Arthur, Boston, now 198 Commonwealth Ave.
 Pratt, Emily Adelaide, from Ellis Island to New York City, 44 Morningside Drive.
 Proctor, Francis Ingersoll, Boston, now 146 Summer St.
 Roderick, Charles Elvin, from Wrentham to Taunton, 68 W. Britannia St.
 Shanahan, Timothy Joseph, from Arlington to West Somerville; office, Boston, 419 Boylston St.
 Shattuck, George Cheever, Boston, now 135 Marlborough St.
 Siragusa, James Joseph, from Brighton to Dorchester; office, Boston, 261 Hanover St.
 Sullivan, Joseph Cornelius, Webster, now 7 Church St.
 Vose, Samuel Norton, from Boston to Needham; office, Boston, 483 Beacon St.
 Watters, William Henry, West Roxbury; office, Boston, now 80 East Concord St.
 Weyher, Russell Frank, from Long Island Hospital to Boston City Hospital.
 Woodward, William Creighton, Brighton (Boston), now 37 Egremont Road.

WANTED

Addresses of the following:

Azadian, David George.
 Bardwell, Frederick Albert.
 Bolduc, Alfred George.
 Lawlor, John Charles.

Changes of address should be sent to the Secretary, Dr. Walter L. Burrage, 42 Eliot St., Jamaica Plain.

NOTICE! NO MAILING ADDRESS GIVEN!

A letter requesting a Point Scale (Yerkes and Rossy) and a Clinical Chart (Jellalian) was received in this office April 24. It was mailed in Worcester April 3, but was misdirected. Will the doctor who mailed the above letter please notify us and the Point Scale and Clinical Chart will be sent at once.

BOSTON MEDICAL AND SURGICAL JOURNAL.

Correspondence.

BRIEF PROTOCOL OF A NECROPSY ON THE WORD AUTOPSY.

Mr. Editor:

If this letter were to be dignified with a title, the above might serve, were it not that the word in question still shows signs of life. There is no gain-saying, however, that for fifteen years or more it has been growing increasingly unpopular among the elect. Just why, I cannot say. I would not have us stand accused of aping our British cousins, for mere aping's sake, and I have heard it objected to on the ground that, properly translated, the word refuses to mean what it ought to mean. These critics would have the word mean "a seeing of one's self," and while, by a sort of poetic license, such a term fits a post-mortem examination well enough, it carries a connotation repugnant to our sensibilities, and we are urged to drop it in favor of "necropsy." Matters have even reached the point where certain editorial blue pencils reject "autopsy" entirely; but I suspect that our pundits still say "autopsy," at least in those inner, unguarded, intimate circles where it is still permissible to chew gum. The word is more familiar, and runs more trippingly from the tongue.

But it is an old saying that analogies are dangerous. In this case, the analogy of "autograph" should have given warning that the analogy of "automobile" is not all-inclusive. The truth is that the prefix "auto" is used in Greek in two ways, reflexive and intensive, with quite different effects on the meaning of the word to which it is prefixed. Thus, while automobile (a mongrel word), does mean self-propelled, autograph does not in the least mean self-written, but written with one's own hand. There are abundant examples of both uses, and sometimes both appear in the same compound. Thus, as examples of the reflexive use, may be cited (I call upon you to bear witness, Mr. Editor, to my forbearance in using the Latin characters. Nothing sets off learning better, or renders erudition more erudite than the use of a foreign character, especially Greek).—*autochoōnos*, rudely (i.e., self) cast; *autophytos*, self caused; *autochroōs*, self colored. The intensive use is illustrated in the following: *autocheiria*, murder done with one's own hand (Aeschylus); *autosapria*, mere rottenness; *autosarx*, mere flesh, utterly carnal; *autochrysos*, of very gold; and both uses side by side in the same word are seen in *autourgia*, which may mean work done with one's own hand, personal labor, experience (Polybius), or a thing done to one's self, self murder (Aeschylus).

Finally, the word autopsy is found in the Delphic Inscriptions, and was used by Dioscorides in the first century of our era, with the meaning "a seeing with one's own eyes," not "a viewing of one's self." I submit that "a seeing with one's own eyes" is an entirely suitable and accurate description of a post-mortem. At least, it leaves old-fashioned folk like myself, who still find "autopsy" easy and convenient to use, not quite naked to the blasts of adverse criticism.

One final example of the intensive use of "auto." I have reserved to the last, and this shall point my moral and adorn my tale. *Schediazō* means to speak extempore. When auto is prefixed, the notion of unpreparedness is intensified, so that *autoschediazō* means to speak without due consideration, to go off, as the saying is, half-cocked.

Bibliography.—Liddell and Scott, Unabridged Greek Dictionary, *passim*.

Yours truly,

R. C. WHITMAN.

Boulder, Colorado.

CRITICISM OF THE REVIEW OF DR. BULKLEY'S BOOK.

Mr. Editor:

Dr. Bulkley's letter published in the April 27th issue of the JOURNAL failed to be as "caustic" as it might well have been (speaking of "burned at the stake").

Regardless of Dr. Bulkley and all his works, the most burning point in the cancer holocaust, in my opinion, is focussed, as it were, in the sentence which closes the *anonymous* review of Dr. Bulkley's recent book on Cancer, the review in the Jan. 26 JOURNAL, which called forth the letter above referred to.

"Anonymous" (even after Dr. Bulkley's letter) is characteristic in this connection. The one devastating, deadly blight which is delaying progress in advancing our knowledge of cancer is condensed and expressed in the brief sentence alluded to.

As the reviewer states, Dr. Bulkley advocates, and teaches the superiority of his method of treating cancer over the method of treating cancer by surgical removal of cancers. Without further ado the reviewer simply states as a fact that Dr. Bulkley is "wrong" in this respect; that "*His teaching in this respect is heresy; his book should be burned at the stake*"—and neglects to sign his name!

Dr. Bulkley is "wrong"; his teaching is heresy; his book "should be burned at the stake." This is all true because the weight of medical authority on cancer says it is true, and for no other known reason. It may be true, but no man's say-so, nor the say-so of any group of men, makes it true.

Disregard Dr. Bulkley altogether. "Cancer at first is a purely local disease" for the sole reason that "authority" says it is. There is no other known evidence of the truth of that dictum; there is ample proof that the dictum is not true. It may be true, but it isn't true because the American Society for the Control of Cancer says it is true, and calls it an axiom!

Obviously, if that statement is a proven truthful statement, not only should Dr. Bulkley's book, but Doctor Bulkley himself, along with a goodly number of other doctors (including the writer), should be burned at the stake. Better burn a few books and doctors at the stake than put at stake the lives of hundreds of thousands of victims of cancer by allowing them to die an unorthodox death from cancer. Undeniably there would be a dreadful death toll if at present all cancer patients were treated on the basis that cancer is from beginning to end a constitutional disease; but it would be very difficult to equal the frightfulness of the cancer death toll as it is at present on the "purely local disease" basis, by treating it on any other basis whatsoever, including not treating it at all. The latest official cancer death rate in this country (1920) is the highest on record: 83.4 per 100,000.

If anybody on earth can demonstrate that cancer at first is a purely local disease, in all solemnity say: "For God's sake, let him do it." If nobody can or will do that thing, then I claim that "the weight of medical authority on cancer" is the greatest obstacle in the way of learning the truth about cancer. It is of no importance whatsoever in which direction the unknown truth lies; the important things are that it remains unknown: that we have sought it in one direction for hundreds of years; that search in any other direction is discouraged as much as possible by those who assume to speak with authority, who are encouraged so to do by an easy-going profession, and who ignore or who denounce (anonymously) as heretics all searchers in prohibited directions; and that more truth must be uncovered before we can make headway against cancer.

Such, in my opinion, is the one phase of the cancer muddle that must be dragged out into the light

where we can take a look at it before we can accept as true the say-so of anyone who poses as an authority upon cancer, be he orthodox standpatter or heretical candidate for stake-burning.

S. W. LITTLE.

Rochester, N. Y.

CURABILITY OF PROGRESSIVE MUSCULAR ATROPHY.

Boston, April 29, 1922.

Mr. Editor:

In your issue of April 27th you published an article by Dr. Joel E. Goldthwait entitled, "A Case of General Progressive Muscular Atrophy with Recovery." The importance of this paper is so great and the conclusions drawn so radical that comment from the neurological standpoint is, perhaps, justifiable. It has long been accepted that certain diseases of the central nervous system, notably those which are characterized by primary degeneration of nerve elements, are progressive in course, and do not yield to treatment. That this has been recognized in the past is, however, no reason why it should not be modified in the future, if sufficient evidence is brought to bear to justify a change of opinion. This evidence Dr. Goldthwait tentatively offers in the publication of his case. Before such evidence is accepted, however, it should be definitely established that the disease which improved under his treatment to the point of practical recovery was, in fact, progressive muscular atrophy in the technical sense in which the term is used by neurologists. This evidence appears not to be forthcoming. If he refers to progressive muscular atrophy of the spinal type, the onset and whole course of the disease would preclude such a diagnosis.

If he refers to the so-called peroneal type of progressive muscular atrophy, here again the sequence of muscular involvement and the mode of onset would remove it from this category. If, in the third place, he refers to a general atrophy, irrespective of spinal cord involvement, he confuses the issue by using the term "progressive muscular atrophy" which, clinically, for the sake of clearness, should be confined to a disturbance with organic basis. The point at issue, therefore, before any deductions can be drawn as to treatment, is whether we are in this case dealing with a progressive muscular atrophy as that term is clinically used. The evidence given in the history and examination does not substantiate this idea. There is no detailed statement of the muscles involved, for example, the condition of the small muscles of the hand, of importance in the diagnosis of the spinal type of progressive muscular atrophy, nor is there a statement regarding the electrical conditions, or the reflexes, beyond the general statement that they are diminished, or the presence or absence of fibrillation.

It is, perhaps, more probable that the patient was suffering from one of the dystrophies in which the primary disturbance is muscular rather than neural, but here again the examination as given is not sufficient to justify a definite diagnosis. The most probable diagnosis which is not mentioned as a possibility is a generalized neuritis—using that term in a broad sense—of unknown etiology. In view of the outcome and the result of treatment, this diagnosis should be most seriously considered.

That the type of treatment advocated by Dr. Goldthwait is of great value in any chronic disturbance I should not be disposed to question in the slightest degree, but that he has demonstrated, as his title implies, that a case of general progressive muscular atrophy has been cured by his method, is open to doubt until he has conclusively shown that he was

dealing with a case of true muscular atrophy. Lacking that evidence, the conclusion appears unjustified that progressive muscular atrophy is curable by this or any other means as yet known.

Truly yours,

E. W. TAYLOR.

PANCREATIC EXTRACT IN THE TREATMENT OF DIABETES

Boston, May 4, 1922.

Mr. Editor:

In accordance with my promise in my letter of last week, I am writing you concerning the further announcements made by Professor Macleod of Toronto and his co-workers upon the results of their work with pancreatic extracts in the treatment of diabetes. He presented his paper yesterday noon before the Association of American Physicians in a clear, simple and so convincing a way that upon its conclusion Dr. Woodyatt of Chicago moved that the members of the Society express to Professor Macleod and his co-workers their appreciation of his epoch-making discovery by a standing vote of thanks. Unless I am in error, this is the first time in twenty years that such action has been taken by the Society.

Insulin, the name given to the new pancreatic extract, has now been obtained from the adult ox pancreas, so that the previous difficult methods described in my letter of last week are no longer necessary. The extract is fat free, nearly protein free, and has a low salt content, and in small quantities produces marked results. So far seven cases of human diabetes have been treated with the extract secured as above. In these cases the blood sugar has been reduced from 0.50 to approximately 0.10 per cent., the urine has been made sugar free, and acidosis has disappeared, which, as I understand it, is one of the earliest effects of the extract.

The entire subject is now being systematically investigated by the workers in Toronto. Professor Macleod said that he could not assert that they had discovered the "whole thing," or that the preparation was safe for all cases, or indeed that it should replace orthodox methods of treatment.

A test of the efficiency of the extract has been made by its injection into 125 normal rabbits. Following the injection the blood sugar, which in rabbits is about 0.125, is reduced within an hour to 0.055 per cent., and if the blood sugar goes too low, then serious convulsions may appear, but these disappear so soon as 5 grams of dextrose are injected into the animal, recovery taking place in two minutes.

All forms of hyperglycemia artificially produced in rabbits are prevented by this method.

With dogs made diabetic by depancreatization, the respiratory quotient has been shown to rise in three clear experiments when sugar combined with extract has been given the dogs. A control experiment has been made with a diabetic dog and the respiratory quotient was raised nearly to 1.0.

The effect of the extract upon the percentage of glycogen in the liver and fat in the liver and blood has been determined. In a diabetic dog carbohydrate will never raise the glycogen content of the liver to more than 1.0 per cent., but when the carbohydrate plus the extract was given to four such dogs, the percentage of glycogen increased to over 10.0 per cent. In diabetic animals the total fatty acids in the liver amount to 10-14 per cent.; in other words, in diabetic animals the glycogen is absent from the liver, but there is much fat. When sugar plus the extract is given to such animals the fat in the liver is decreased simultaneously with the increase of glycogen, though both exist together at times, thus controverting an old theory. The lipemia of diabetic dogs will amount to 2.0 per cent., but when

sugar plus the extract is given to such dogs, it decreases to 0.5 per cent.

Whereas it was possible to produce the extract on a small scale, it has not yet been possible to satisfactorily produce it in large quantities, and, in fact, the extract has not been available in Toronto for two months. It may be six months or more before the extract is generally available, but it would seem certain that it was simply a question of time until the medical profession would have this new method of treatment of diabetes at its disposal.

Very truly yours,

ELLIOTT P. JOSLIN.

SIMMONS COLLEGE PRE-MEDICAL COURSE.

Mr. Editor:

The Simmons College catalogue announcing courses for 1922-1923 includes a new two-year pre-medical program which is arranged to meet the admission requirements of medical schools of the Class A rating adopted by the American Medical Association. This announcement will be welcome to many women who are planning to go into medicine as a profession as the required arrangement of courses is not ordinarily possible in women's colleges.

Very truly yours,

C. M. HILLIARD,

Professor of Biology and Public Health.

A SECTION OF OBSTETRICS IN THE STATE SOCIETY.

SOMERVILLE, May 3, 1922.

Mr. Editor:

The best way to care for the parturient woman, and the best way to safeguard the new-born, has in the past few years been freely discussed in public and private by the laity. In legislative halls, both state and national, the matter of maternity and infant welfare has received more than ordinary consideration. Strange as it may seem, the medical press and organized medical societies, with some notable exceptions, has not given to the discussion as much space and thought as the subject might seem to demand. The care of the parturient woman and the welfare of the new-born is primarily a medical work and should be exclusively under the supervision and direction of the medical profession. To achieve this end, I am asking through the JOURNAL, Mr. Editor, that there should be established in the Massachusetts Medical Society, consistent with its constitution and by-laws, a Section of Obstetrics.

The formation of such a Section, in my opinion, would be the first step in solving the problem of the best care of the expectant mother and her child. In the Section of Obstetrics, if established, the general practitioner who is in obstetrical work and the expert in obstetrical practice could come together on equal footing to discuss obstetrical problems, and finally to determine what are the best, the safest, and the sanest means by which the expectant mother and child could be safeguarded.

The control of medical public opinion as regards the practice of obstetrics would be in the hands of those trained and competent to guide. By means of such a Section, the public could be instructed and guided in this important matter. There may be in other state medical organizations a Section of Obstetrics, but I have not heard of any. If our Society determines to establish a Section in Obstetrics, it will be the first among state societies to do so, and I think our example would be a powerful incentive to other state societies to make intensive studies in their respective states of their obstetrical conditions.

CHAS. E. MONAGAN.

24 Central Street.

NOTICES.

NURSES NEEDED BY GOVERNMENT.

THE United States Civil Service Commission states that there is need for nurses in the hospitals of the United States Veterans' Bureau and the Public Health Service and at Indian schools and agencies. Applications will be received for these positions until further notice.

Applicants are not given a written examination, but are rated upon the subjects of physical ability, weighted at 10 per cent., and training and experience, weighted at 90 per cent. Applicants must have graduated from a recognized school for trained nurses requiring a residence of at least two years in a hospital giving thorough practical and theoretical training.

Full information concerning entrance requirements, salaries, etc., and application blanks, may be obtained by communicating with the United States Civil Service Commission, Washington, D. C., or the Secretary of the Civil Service Board at the postoffice or custom house in any city.

NOTICE OF EXAMINATION FOR ENTRANCE INTO THE REGULAR CORPS OF THE UNITED STATES PUBLIC HEALTH SERVICE.

Examinations of candidates for entrance into the regular corps of the United States Public Health Service will be held at the following-named places on the dates specified: At Washington, D. C., May 15, 1922; at Washington, D. C., June 12, 1922; at San Francisco, Cal., June 12, 1922.

Candidates must be not less than twenty-three nor more than thirty-two years of age, and they must have been graduated in medicine at some reputable medical college, and have had one year's hospital experience or two years' professional practice. They must pass, satisfactorily, oral, written, and clinical tests before a board of medical officers and undergo a physical examination.

Successful candidates will be recommended for appointment by the President with the advice and consent of the Senate. Requests for information or permission to take this examination should be addressed to the Surgeon General, U. S. Public Health Service, Washington, D. C.

H. S. CUMMING, *Surgeon General*.

UNITED STATES CIVIL-SERVICE EXAMINATIONS.

Laboratorian (Bacteriology), Assistant Laboratorian (Bacteriology), Associate in Clinical Psychiatry and Psychotherapy, Assistant Medical Officer (Psychiatry), \$2000 to \$2500 a year; Junior Medical Officer (Psychiatry), \$1200 to \$1800 a year. Applications will be rated as received until further notice.

The United States Civil Service Commission announces open competitive examinations under the above titles. Vacancies in St. Elizabeth's Hospital, Washington, D. C., in the positions of assistant physician, junior assistant physician, and medical interne, at the salaries indicated, and vacancies in positions requiring similar qualifications, at these or higher or lower salaries, will be filled from these examinations, unless it is found in the interest of

the service to fill any vacancy by reinstatement, transfer, or promotion.

Applications.—Applicants should at once apply for Form 1312, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.; the Secretary of the United States Civil Service Board, Customhouse, Boston, Mass.; New York, N. Y.; New Orleans, La.

UNITED STATES CIVIL-SERVICE EXAMINATION—LABORATORY AID IN BACTERIOLOGY—JUNE 7, 1922.

The United States Civil Service Commission announces an open competitive examination for laboratory aid in bacteriology on June 7, 1922. Applicants should at once apply for Form 1312, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C., or to the Secretary of the United States Civil Service Board

THE BOSTON ORTHOPEDIC CLUB.—Dr. E. E. Peckham will entertain the Boston Orthopedic Club at the Boston Medical Library on Monday, May 15, 1922, at 8:15 o'clock. Program: "Confessions of an Internist in Medical Orthopedics," Dr. Roger I. Lee. Discussion opened by Dr. Stanley Cobb, Dr. Joel E. Goldthwait, Dr. Robert J. Cook, Lloyd Brown, President; F. R. Ober, Secretary.

NEW ENGLAND PEDIATRIC SOCIETY.—The 75th meeting will be held at the Boston Medical Library on Friday, May 12, 1922, at 8:15 P. M.

The following papers will be read:

Acidosis, Oscar M. Schloss, M.D., Boston.

The Use of Convalescent Serum in the Treatment of Scarlet Fever, Edwin H. Place, M.D., Boston.

Mothers with Positive Wassermann Reactions, and their Children, David L. Belding, M.D., Boston.

Light refreshments will be served after the meeting.

RICHARD M. SMITH, M.D., *President*.
LEWIS W. HILL, M.D., *Secretary*.

BOSTON CITY HOSPITAL.—Staff Clinical Meeting at Cheever Surgical Amphitheatre, Thursday, May 11, 1922, at 8 P. M. "Causes and Treatment of Vomiting in Infants," Oscar M. Schloss. "Rashes: Their Significance, Differential Diagnosis, Treatment," Edwin H. Place. Open discussion. Refreshments served. Physicians and medical students invited.

BOSTON ASSOCIATION OF CARDIAC CLINICS.—A meeting has been arranged by the Association, to be held at the Children's Hospital, Longwood Avenue, Thursday, May 18, 1922, at 8.15 P. M. Dr. Louis I. Dublin of the Metropolitan Life Insurance Company of New York will speak on "Heart Disease in the Community." The discussion will be opened by Dr. David N. Blakely, Assistant Medical Director, New England Mutual Life Insurance Company, Boston. Dr. Paul W. Emerson of Boston will speak on "Heart Disease in the Schools." The discussion will be opened by Dr. William H. Devine, the chief physician in Boston schools. The meeting is open to all interested in the problems of heart disease.

BOSTON MEDICAL HISTORY CLUB.—Friday, May 12, 1922, at 8.15 P. M., at Boston Medical Library. Dr. Walter R. Steiner, Hartford, Conn., "Dr. Elisha Perkins and His Metallic Tractors." Dr. Edward C. Streeter will speak informally on the plan to install an ancient apothecary shop in the Boston Museum of Fine Arts.

WORCESTER DISTRICT MEDICAL SOCIETY.

The annual business meeting of the society was held Wednesday, May 10, 1922, at 12.30 p. m., at the Lancaster Mills Inn, Clinton, Mass. The annual dinner was served at 1.30 p. m. Music and entertainment was provided during the dinner. Following the dinner the annual oration was given by Dr. Arthur W. Marsh, Worcester. Subject, "Changes Occurring in the Past Twenty-five Years Having an Effect on the Practice of Medicine."

The Clinton Fellows entertained the members the remainder of the afternoon at playing golf, close-up inspection of Clinton's large industries, visits to the Hospital, Wachusett Dam, etc.

The following officers reported by the Nominating Committee were elected for 1922-1923: President, Dr. George E. Emery, Worcester; Vice-President, Dr. Arthur W. Marsh, Worcester; Treasurer, Dr. George O. Ward, Worcester; Secretary, Dr. A. W. Atwood, Worcester; Orator, Dr. Albert G. Hurd, Millbury; Committee on Funds, Dr. Homer Gage, Worcester, Dr. David Harrower, Worcester, Dr. Ray W. Greene, Worcester; Commissioner of Trials, Dr. Walter P. Bowers, Clinton.

Councillors: Dr. F. H. Baker, Worcester, term began 1914; Dr. W. P. Bowers, Clinton, ex-officio, term began 1902; Dr. L. R. Bragg, Webster, term began 1922; Dr. G. A. Dix, Worcester, term began 1921; Dr. G. E. Emery, Worcester, term began 1920; Dr. M. F. Fallon, Worcester, term began 1916; Dr. Homer Gage, Worcester, term began 1906; Dr. J. J. Goodwin, Clinton, term began 1921; Dr. R. W. Greene, Worcester, term began 1907; Dr. David Harrower, Worcester, term began 1905; Dr. E. L. Hunt, Worcester, term began 1918; Dr. A. G. Hurd, Millbury, term began 1916; Dr. A. W. Marsh, Worcester, term began 1922; Dr. L. C. Miller, Worcester, term began 1921; Dr. C. B. Stevens, Worcester, term began 1920; Dr. G. O. Ward, Worcester, term began 1915; Dr. F. H. Washburn, Holden, term began 1916; Dr. S. B. Woodward, Worcester, ex-officio, term began 1902.

Councillor on Nominations: Dr. David Harrower, Worcester; Dr. George O. Ward, Alternate. Censors: Dr. F. H. Washburn, Holden, Supervisor: Dr. E. H. Mackay, Clinton; Dr. C. A. Sparrow, Worcester; Dr. E. H. Trowbridge, Worcester; Dr. J. J. Cummings, Worcester. Nominating Committee: Dr. F. L. Magune, Worcester; Dr. T. J. Foley, Worcester; Dr. R. J. Ward, Worcester; Dr. Merrick Lincoln, Worcester; Dr. J. C. Austin, Spencer. Librarian: Dr. A. C. Getchell, Worcester. Library Committee: Dr. Wm. F. Lynch, Worcester; Dr. O. H. Stansfield, Worcester; Dr. Wm. F. Holzer, Worcester. Auditing Committee: Dr. J. A. Barnes, Worcester; Dr. E. R. Leib, Worcester; Dr. Kathlyn Voorhis, Worcester.

ANNUAL MEETING OF THE NORFOLK SOUTH DISTRICT SOCIETY.

The annual meeting of the Norfolk South District Society was held Thursday, May 4, 1922, at the United States Hotel, Boston, Mass. Officers elected were: President, F. E. Jones, M.D.; Vice-President, C. A. Sullivan, M.D.; Secretary-Treasurer and Librarian, R. M. Ash, M.D.; Censors, G. M. Sheahan, Supervisor, F. W. Crawford, W. G. Curtis, A. J. Roach, F. R. Burke; Councillors, G. H. Ryder, Nom., G. M. Sheahan, Alt., C. S. Adams, O. H. Howe; Commissioner of Trials, N. S. Hunting, M.D.

Previous to the election, the Society received an unexpected call from the President of the parent Society who gave an interesting talk on the functions and duties of the officers of the parent Society.

F. E. Jones, M.D., President of the District Society, gave the annual address, and chose as his subject, "The Death Rate According to Different Dis-

eases and Statistics in the City of Quincy for the Last 15 Years."

The Board of Censors met after the meeting, and one candidate was examined and passed a successful examination.

After the meeting the usual good dinner that the United States Hotel provides was enjoyed by the members.

James Edward Knowlton, M.D., was admitted to membership in the Norfolk South District Medical Society, May 4, 1922.

RICHARD M. ASH, M.D., *Secretary*.

LEGISLATIVE MATTERS.

Senate 420. Bill relative to certain penalties for the violation of certain laws relating to narcotic drugs and to commitments of drug addicts. Passed to be engrossed by the Senate. Sent down for concurrence.

Senate 429. Bill establishing the Division of Mental Hygiene in the Department of Mental Diseases. Ordered to a third reading by the Senate.

House 1602. Bill to provide for the registration of medical students for the limited practice of medicine. Passed to be engrossed by the House. Sent up for concurrence.

NEW ENGLAND SURGICAL SOCIETY.

C. A. PORTER, *Pres.* P. E. TRUESDALE, *Sec.*
H. L. SMITH, *Vice-Pres.* P. P. JOHNSON, *Treas.*

To the Members of the Society:

The fifth annual meeting will be held at Burlington, Vt., September 22 and 23, 1922, with headquarters at Hotel Vermont.

The following is a tentative outline of the program:

FRIDAY.

- 9 A. M.—Operative Clinic, Mary Fletcher Hospital.
- 11 A. M.—Dry Clinic, Mary Fletcher Hospital.
- 12:30 P. M.—Lunch at Ethan Allen Club.
- 2 P. M.—Scientific program, Hotel Vermont, Roof Garden.
- 4 P. M.—Steamer Ticonderoga—Boat party to points of historic interest and rare scenic beauty on Lake Champlain.
- 7 P. M.—Annual dinner on board steamer Ticonderoga.

SATURDAY.

- 9 A. M.—Reading of papers—Hotel Vermont.
- 12:30 P. M.—Lunch, etc., at Hotel Vermont.
- 2 P. M.—Completing the scientific program.

The invitation for the 1922 meeting to be held at Burlington has been most cordially extended by the Vermont members.

No part of New England is more picturesque and more memorable in American history. No section of New England is more worthy of a largely attended meeting. So plan to make September 21 and 22 a part of your vacation.

Members are invited to prepare papers for this meeting. The title of each paper should be in the hands of the secretary on or before June 1.

P. E. TRUESDALE, *Secretary*.

The Boston Medical and Surgical Journal

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Original Articles.

LEUKEMIA AND SEVERE ANEMIA IN CHILDHOOD: A STUDY OF THIRTY-SEVEN CASES.

BY JOHN LOVETT MORSE, A.M., M.D., BOSTON.

Professor of Pediatrics, Emeritus, Harvard Medical School.

THIS study is based on thirty-seven cases of leukemia and severe anemia in childhood seen in hospital and private practice during the last twenty-five years. No cases in infancy have been included because, on account of the peculiarities of the infant's blood, they must be considered from a different point of view. Hemophilia and the purpuras have been excluded, as well as cases apparently secondary to hemorrhage from other causes. So also have cases apparently due to sepsis. The observations on these cases are, as a rule, not complete, because many of them were seen only once in consultation, the examinations of the blood were made by many different men, and, in many instances, before the development of the more recent methods. The examinations of the blood, in many instances, were not complete, some points being lacking in one instance and some in another. Unfortunately, autopsies were seldom made. Nevertheless, in spite of the incom-

pleteness of the observations, an analysis of this series, which is a considerable one for childhood, does show a number of points of interest.

MYELOGENOUS LEUKEMIA.

THIS diagnosis was made but once, in a boy of four years, and then on the findings of an incomplete autopsy, showing the rarity of this condition in childhood. The first symptoms, irregular fever and intermittent swelling of the joints, began in November. He vomited blood about the middle of May. His color from that time on was described as of a greenish pallor. His abdomen began to enlarge early in July. Dyspnea and cough developed soon after. There was a profuse nasal discharge and swelling of the legs a week before his sudden death at the end of August.

He was of a marked yellowish pallor. There was a general enlargement of the peripheral lymph nodes to the size of marbles and beans, and there were signs of marked enlargement of the tracheo-bronchial lymph nodes with pressure. The lower border of the liver reached to the right anterior superior spine and passed through the navel. The spleen reached to the anterior superior spine and filled in the loin. There was edema of the genitals and legs.

He died unexpectedly before the blood was examined. Dr. Wolbach reported that the liver

and spleen showed the characteristic changes of myelogenic leukemia.

LYMPHATIC LEUKEMIA.

There were twelve cases of undoubted lymphatic leukemia in which the mononuclear cells numbered at least fifty thousand, in most instances being in the hundreds of thousands. There were four boys and eight girls. Their ages at their last birthdays were: Two, two, three, three, five, six, six, six, seven, nine, ten, and thirteen years—an average of six years. The duration of the disease varied between three and twelve weeks, with an average of eight weeks, except in one case, in which the history of the onset was very indefinite and which apparently lasted nine months. That is, lymphatic leukemia almost always runs a very acute course in childhood.

In one instance in which the blood was examined and found normal before the development of scarlet fever in the hospital, leukemia developed during convalescence and ran its course in three weeks. In another instance the onset apparently followed a fall. In the other cases there was no apparent etiology.

The first symptoms noted were enlarged glands in the neck, vomiting and hemorrhage, each in two instances; weakness, fever, sore throat, anorexia, pallor and abdominal pain, each in one. Hemorrhages occurred in all but one case; early in four, late in seven. Eight had nosebleeds and eight purpura, while two had bleeding from the gums. Two vomited blood, one had blood in the stools, another in the urine, and another a hemorrhage into the conjunctiva. The symptoms complained of were weakness and fever, each in seven; vomiting and abdominal pain, each in four; sore throat, three times; pain in the neck and chest, sweating, dyspnea, headache, and ulceration in the mouth, each once.

The glands in the neck were enlarged in ten cases; markedly in four, moderately in one, and slightly in five. Those in the axillae and groins were enlarged, each in nine cases. There were evidences of enlargement of the tracheo-bronchial lymph nodes in five cases. The epitrochlear glands were enlarged in three cases, and the popliteal and occipital, each in one. The liver was enlarged in eight cases, the enlargement in six being considerable. The spleen was greatly enlarged in five and moderately in five. The nutrition was noted as being good in six and poor in three. The urine was normal in five cases, showed albumin alone in two, albumin and red cells in one, and albumin and casts in another.

The accompanying table (Table I) shows an enormous increase in the number of white cells, even up to 1,000,000. This increase was in most instances almost entirely in the mononu-

clear cells. These were usually classified as lymphocytes, but in one instance they were called small mononuclear, in another medium-sized mononuclear, and in another large mononuclear. In several the cells were of various sizes. This classification is not of great importance, because the examinations were made by many different men. No myelocytes were noted in any instance. There was usually, but not always, a considerable diminution in the hemoglobin and number of red corpuscles. Morphological changes in the red cells were absent or very slight in all but three cases. In these cases, a very few normoblasts were seen in two, many normoblasts and megaloblasts in one. The blood platelets were noted in but four cases. In two they were said to be diminished, and in two, much diminished. The bleeding and coagulation times were noted in but one instance, the first being five minutes and the latter three minutes.

SEVERE ANEMIA WITH MODERATE OR LOW WHITE COUNTS, BUT WITH A HIGH PERCENTAGE OF MONONUCLEAR CELLS.

An attempt was made to divide these cases into two classes, those in which the white count was within or above the normal limits, and those in which it was below. It was impossible to do this, because the count might be subnormal, normal, or a little above normal on different days. In a few, however, the count was consistently low. There were eighteen cases in this group, twelve boys and six girls. All of them died. The ages at their last birthdays were: Two, two, three, three, three, three, three, three, three, three, four, four, five, five, six, seven, eight, and twelve years, giving an average of four and one-half years. The duration of the disease varied between two weeks and six months, with an average of ten and one-half weeks. If the two cases which lived six months are excluded, the average duration of the others was eight and one-half weeks. That is, this type of blood disease in childhood runs a very acute course. In one instance the onset of the illness was immediately after an attack of measles, in another it followed an operation for the removal of tonsils and adenoids, and in another a fall on the head. In one it was thought to have developed after an attack of malaria, but no plasmodia could be found in the blood. In another there was a possible connection with an abscessed tooth, but there was no improvement after the tooth was removed. In the others there was no apparent etiology.

The first symptoms noted were pallor in six and malaise in three cases; enlarged glands and weakness, each in two; loss of appetite, fever, pain in the abdomen, enlargement of the abdomen, and diarrhea, each in one. Hemor-

rhages occurred in one-half of the cases; early in three, late in six. Two had nosebleeds and eight purpura. Two vomited blood and one bled from the mouth. One had blood in the stools. The symptoms complained of were weakness in fifteen and fever in thirteen cases. There was loss of appetite in eight, vomiting in three, and diarrhea in two instances. One had a sore throat and three sore mouths. Four complained of pain in the extremities, one of pain in the neck, and another of headache. Two were short of breath, while cough, sweating, chills, and edema were each noted once.

The glands in the neck were enlarged in fifteen cases; markedly in three, moderately in five, and slightly in seven. Those in the groins were enlarged in ten, and those in the axillae in seven instances. Evidences of enlargement of the tracheo-bronchial lymph nodes were found three times. The parotid glands were apparently enlarged twice, but the enlargement was shown at autopsy in one of them to be about the gland, not in it. The liver was enlarged in sixteen cases, the increase being considerable in more than half. The spleen was enlarged in twelve, or 75 per cent.; being much enlarged in five, moderately enlarged in four, and slightly in three. The nutrition was good in ten, fair in six, and poor in only two. The urine was normal in all but two, in which it showed a trace of albumin. Wassermann tests were done in two and tuberculin tests in six, all of which were negative.

A comparison of the history, physical signs, and duration of the disease in this group of cases and in the group of children with lymphatic leukemia shows no essential difference in any particular. The differences are only in degree and no greater than between different cases in the same group.

The analysis of the blood picture in this group, as shown in the accompanying table (Table II), brings out a number of interesting points. The percentage of hemoglobin was below fifty in fifteen, or 83 per cent. In one case, however, in which there were over 6,000,000 red cells, it was 96 per cent., and in another 75 per cent. The red cells were usually much diminished, being below 2,000,000 in ten, or 55½ per cent., and over 3,000,000 in only three, or 17 per cent. The number of white cells was below 30,000 in all but two cases. In one of these it varied between 29,000 and 70,000; in the other it was 40,800. In the latter case, at another examination, it was only 18,600. It was below 10,000 at some time in eight cases, in one instance being as low as 2,600. The proportion of mononuclear, non-granular, white cells varied between 64 per cent. and 100 per cent., being 90 per cent. or over in twelve, or 66 per cent. In most instances these cells were entirely or preponderantly of the lymphocytic type. In only three

was there a preponderance of large mononuclear cells. The blood platelets were noted in but eight cases. None was seen in two, there were very few in four, they were much diminished in one, and numbered 28,000 in another. Morphological changes in the red cells were, as a rule, slight or moderate and seldom extreme. Nucleated cells were seen in but four cases. In three of these there were only a few normoblasts, in the other there were many megaloblasts, as well as normoblasts. This case also showed the most marked changes in size, shape, and staining of the red cells. The bleeding and coagulation times were noted in but one instance. They were six and a half minutes and seven minutes, respectively.

Comparison of the blood picture in this group with that in the group of definite lymphatic leukemias shows that the percentage of the hemoglobin and the number of red cells were lower in this group. While the number of white cells was, of course, much lower, the percentage of mononuclear cells was about the same. The relations between the large and small mononuclear cells were likewise not materially different. The platelets were greatly reduced in both. The morphological changes in the red cells were, on the average, considerably greater in this group than in the positive leukemias; the proportion of cases showing nucleated red cells was no greater.

Are the cases in this group lymphatic leukemia in an aleukemic stage or are they some form of severe anemia? Pathological examinations would have settled this question. Unfortunately, an autopsy was performed in but one instance, the child whose hemoglobin was 96 per cent. and the number of whose red corpuscles was 6,364,000, according to the hospital records. The white cells in this instance ranged between 6,700 and 14,700, and the percentage of mononuclear cells between 64 and 77. The absolute number of mononuclear cells was never increased more than 60 per cent. and was at one time below normal. The polynuclear neutrophils were diminished from 30 per cent. to 40 per cent. of the normal. The diagnosis of acute lymphatic leukemia was made on the macroscopic changes at the autopsy, but, unfortunately, the records do not contain any report of the microscopic findings. The findings in this instance are so different from those in any of the others that it is difficult to know how to interpret them. It is possible that there may have been some error in them.

The normal number of leucocytes in childhood is approximately 10,000 per cubic millimeter. Disregarding the small percentage of eosinophiles and mast cells, before five years about 60 per cent. of them are mononuclear and 40 per cent. polynuclear neutrophils. At and after five years, about 40 per cent. are mononuclear and 60 per cent. polynuclear neu-

Table I. *Lymphatic Leukemia.*

MORPHOLOGY OF RED CORPUSCLES																
Age.	Percentage Hemoglobin.	Red Corpuscles.	White Corpuscles.	Percentage Lymphocytes.	Percentage Small Mononuclears.	Percentage Medium Mononuclears.	Percentage Large Mononuclears.	Absolute Number Polynuclear Neutrophils.	Size.	Shape.	Staining.	Nucleated.	Platelets.	Bleeding Time.	Coagulation Time.	
2	?	?	57,000				98	1,140	Mod. Variation	N	N	None	?			
2	25	1,280,000	54,000	85			8	3,780	Consid. Variation	Consid. Variation	Achromia	None	?			
	20	1,370,000	153,600	84			12	6,144	Consid. Variation	Consid. Variation	Achromia	Few normoblasts	?			
3	24	2,024,000	87,000	87			6	6,090	Slight Variation	N	?	None	?			
	80	3,670,000	390,000	98				7,800	N	N	N	None	Diminished			
9	45	3,100,000	325,000	39			58	9,750	N	N	N	None	?			
5	35	1,960,000	217,000	100				0	Slight Variation	Mod. Variation	N	None	Much Diminished	5'	3'	
6	70	3,520,000	128,000		99.2			1,024	N	N	N	None	?			
	40	2,468,000	577,000	97				17,310	Marked Variation	Marked Variation	Achromia +	{ Many normoblasts and megaloblasts Very few normoblasts	?			
3	30	1,864,000	469,000	97				14,040	Marked Variation	Marked Variation	Achromia +		?			
6	55	3,624,000	632,000	99				6,320	Marked Variation	Slight Variation	Achromia Slight		?			
7	52	3,100,000	87,000	20			70	8,700	N	N	N	None	Much Diminished			
	40	1,880,000	96,000	19			72	8,640	N	N	N	None	?			
		2,700,000	380,000	29			41	114,000	Slight Variation	Slight Variation	Achromia	None	?			
9	60	2,480,000	456,000	22			61	77,520	?	?	Achromia	None	?			
10	75	4,000,000	484,000		97			13,520	N	N	N	None	?			
	55	2,100,000	536,000	97				16,080	?	?	?	?	?			
13	?	4,500,000	1,000,000	100				0	?	?	?	?	?			

Table II. *Severe Anemia.*

MORPHOLOGY OF RED CORPUSCLES

Age.	Hemoglobin.	Red Corpuscles.	White Corpuscles.	Percentage Lymphocytes.	Percentage Mononuclears.	Absolute Number Mononuclears.	Absolute Number Polynuclears.	Percentage Myelocytes.	Size.	Shape.	Staining.	Nucleated.	Platelets.	Bleeding Time.	Coagulation Time.
2	96	6,864,000	14,700	50	23	10,731	3,969		Some Enlargement	N	?	None	?		
			6,700	23	41	4,288	2,412		?	?	?	?	?		
2	20	1,584,000	5,100	68	15	4,233	867		Mod. Variation	Mod. Achromia	Mod. Achromia	None	?		
3	75	3,500,000	7,000	60	20	5,600	1,400		?	?	Slight Polychromatoph.	None	?		
3	20	864,000	2,600	94	2	2,496	104		Consid. Variation	Consid. Variation	Mod. Achromia	None	?		
3	20	736,000	16,000	95	2	15,520	480		Consid. Variation	Consid. Variation	Mod. Achromia	None	?		
3	25	2,560,000	15,400	99		15,246	154		Slight Variation	Slight Variation	Slight Achromia	1 to 100 whites	None		
3	30	2,228,000	20,200	98.4		19,876	324		N	N	Mod. Achromia	None	Very few		
3	20	1,124,000	9,300	81.2	0.4	7,588	1,712		Mod. Variation	Mod. Variation	Slight Achromia	None	28,000		
3	30	1,180,000	32,000	100		32,000			Marked Variation	Marked Variation	Marked Achromia	None	Very few		
3	10	1,168,000	10,000	91	2	9,300	700		Marked Variation	Marked Variation	Mod. Achromia	None	None		
4	40	1,200,000	8,400	95		7,980	420		Slight Variation	Slight Variation	Marked Achromia	None	Very few		
4	10	784,000	19,200	82	10	17,664	1,536		Slight Variation	Slight Variation	Slight Achromia	None	?		
5	10	3,200,000	20,000	24	75	19,800	200		Mod. Variation	N	Marked Achromia	None	?		
5	35	1,480,000	10,400	56	34	9,360	728	3	N	N	Slight Achromia	None	?		
5	30	2,960,000	40,800	56	27	33,864	5,304	4	Consid. Variation	Consid. Variation	Marked Achromia	2 normoblasts to 100 whites	Very few		
		2,300,000	18,600	78	1	14,094	3,162	4	Slight Variation	Slight Variation	N	?	Much Diminished	6 1/2'	7'
6	15	756,000	25,900	99.4		25,744	249	0.3	N	Mod. Variation	Slight Achromia	1 normoblast to 325 whites	?		
7			16,400	8	86	15,416	984		N	N	Slight Achromia	None	?		
	50	2,880,000	9,200	20	76	8,832	368		Slight Variation	Slight Variation	?	None	?		
8	20	1,263,000	8,000	83	3	6,880	1,000	1.5	Slight Variation	Mod. Variation	Mod. Achromia	22 to 400 whites	Much Diminished		
	30	1,528,000	13,000	71	9	10,400	1,950	5	Consid. Variation	Slight Variation	Marked Polychromatoph.	Mostly normoblasts 18 to 200 whites	Much Diminished		
12	30	2,000,000	35,000	95		33,250	1,750		Slight Variation	?	?	Mostly megaloblasts	Much Diminished		
												None	?		

ARBITRARY STANDARDS.—White Corpuscles—10,000.
Before 5 years —60% mononuclears and 40% polynuclear neutrophils.
5 years and after—40% mononuclears and 60% polynuclear neutrophils.

trophiles. Accepting these figures as an arbitrary standard and calculating the absolute number of mononuclear cells and polynuclear neutrophils, it appears that, in spite of the high percentage of mononuclear cells in all these cases, the absolute number of mononuclear cells was below the normal, either all or part of the time, in four cases, and but little above the normal all or part of the time in five others. That is, there was a noteworthy increase above the absolute normal number of mononuclear cells in only one-half the cases. These figures suggest very strongly that in at least one-half of these cases there was no disease of the structures in which the mononuclear cells—at any rate the small—originate, but that the difficulty was in those structures in which the polynuclear neutrophils are formed. That is, the high percentage of mononuclear cells was not due to an increase in their number, but to a decrease in the number of polynuclear cells. The calculation of the absolute number of polynuclear neutrophils shows that in every instance but one the absolute number of polynuclear neutrophils was very much reduced, and in this instance it was also somewhat below the normal. It may be said that the diminution in the absolute number of polynuclear neutrophils was due to an overgrowth of lymphoid tissue in the bone-marrow. Against this argument are the diminished or nearly normal number of mononuclear cells in half of the cases and the comparatively moderate increase in the others, as it would seem likely that there would be an enormous increase in the number of mononuclear cells, if the process was severe enough to interfere so greatly with the polynuclear neutrophilic function of the bone-marrow. The marked diminution in the number of blood platelets is further evidence in favor of a diminution in the function of the bone-marrow. The morphological changes in the red cells were, as a rule, slight, or, at most, moderate. Nucleated red cells were seen in but four cases and were very few, except in one instance. There are two possible explanations for the absence of more marked changes in the red corpuscles: one, that, as the seat of trouble is not located in the bone-marrow, there is no reason why there should be many changes in them; the other, that the productive powers of the bone-marrow are so impaired that it is unable to manufacture the normal number of red cells, but that the productive power which remains is of nearly normal quality. Taking into consideration the other characteristics of the blood picture, it seems, in spite of the resemblance of the history and physical signs of this group of cases to those of lymphatic leukemia, as if the latter was the more probable explanation.

A profound depression of the productive powers of the bone-marrow apparently explains

the blood picture in this group better than lymphatic leukemia. It does not, however, satisfactorily account for the enlargement of the liver, spleen and lymph nodes and the increase in so many cases of the mononuclear cells, unless it is assumed that they may originate in the bone-marrow. Even then an increased production would hardly be expected. Another possible explanation is that there has been a compensatory hypertrophy of the lymphatic system. It is also very possible that the cases in this group are not all of the same kind. Some of them really may be cases of lymphatic leukemia in an aleukemic stage, or there may be various gradations between lymphatic leukemia and severe anemia in children. There is nothing to show that the anemia in these cases is due to excessive blood destruction. There is certainly no evidence of the characteristic attempts at regeneration of the blood when this is the cause. That is, they are not like the ordinary pernicious anemia of the adult. The course is too rapid for the blood changes to be due to exhaustion of the bone-marrow after a previous stimulation. The anemia is evidently due, then, to failure of the bone-marrow to carry on its functions. That is, these cases, or, at any rate, most of them, belong in the group usually spoken of as aplastic anemia, rather than among the leukemias. The absence of hemorrhages in half of the group counts much against their being examples of purpura hemorrhagica. In the absence of any studies of bleeding and coagulation time and of fragility, it is possible that some of the cases with hemorrhages may belong in this class.

The following case also suggests that the cases in this group belong to the anemias rather than to the lymphatic leukemias. This girl of five years had gradually increasing weakness and pallor for six weeks. She had been feverish for a week. She had lost her appetite and occasionally complained of pains in the abdomen. Purpuric spots had appeared on various parts of the body and extremities for several weeks, ecchymoses in the eyelids three days before, and bleeding from the gums that day. She was fairly developed and nourished and markedly pale. There were a few small glands in the neck and groins. The liver was palpable $10\frac{1}{2}$ and the spleen 4 cm. below the costal border. The urine was normal.

The blood showed: Hemoglobin, 35 per cent.; red corpuscles, 1,744,000; white corpuscles, 9,000; lymphocytes, 66 per cent.—5,940; polynuclear neutrophils, 6 per cent.—540; eosinophils, 1 per cent.—90; myelocytes, 27 per cent.—2,430. The changes in the red cells were only moderate, except that there were six normoblasts and two megaloblasts to 100 white cells. More purpuric spots appeared and she began to vomit blood, dying six days later. Her blood, the day before she died, showed: Hemo-

globin, 25 per cent.; red corpuscles, 1,136,000; white corpuscles, 5,000; lymphocytes, 69 per cent.—3,450; polynuclear neutrophiles, 11 per cent.—550; eosinophiles, 1 per cent.—50; myelocytes, 19 per cent.—950. The morphological changes in the red cells were somewhat more marked, but there were only four normoblasts and no megaloblasts to 100 white cells.

In this case also the number of white cells was normal or diminished, and, although the percentage of mononuclear cells was high, the absolute number was but little or not at all increased. The number of polynuclear cells was not only relatively but absolutely very much diminished. There were, however, a considerable number of myelocytes. The morphological changes in the red cells were somewhat more marked, and there were a considerable number of nucleated red cells. That is, it would seem as if the fundamental process was the same as in the group, but that in this instance there had been a partial attempt at regeneration of the blood and that the bone-marrow had been able to throw partly finished cells into the circulation.

Another instance which is corroborative of the belief that these cases are anemias rather than leukemias is the following:

A boy of eight years, previously perfectly well, had become bedridden in eight weeks because of weakness. He had also lost much color, but had had no fever, hemorrhages or digestive symptoms. He was well developed and nourished, but of a marked yellowish pallor. There was no enlargement of the peripheral lymph nodes, but the liver was palpable 3 cm. below the costal border, and the spleen reached below the level of the navel. His urine contained a slight trace of albumin and a few granular casts. His stool was formed, light brown in color, and contained neither parasites nor eggs. His blood showed: Hemoglobin, 25 per cent.; red corpuscles, 1,500,000; white corpuscles, 5,000; lymphocytes, 14 per cent.—700; polynuclear neutrophiles, 86 per cent.—4,300. The red cells showed slight achromia and polychromatophilia. There was much variation in their size and shape. There were many large red cells, but no general macrocytosis. No nucleated cells were seen and there was no stippling. The blood platelets seemed somewhat reduced in number.

His condition grew steadily worse and he died four weeks later. The hemoglobin and red cells continued to diminish. The number of white cells remained low, their relative proportions being the same. At no time were there any nucleated red cells.

At first glance the high percentage of polynuclear neutrophiles makes this case appear different from the others. Calculation of the absolute number of these cells shows, however, that they are not increased, but that the lym-

phocytes are diminished. This case also seems to be, therefore, one of severe anemia without regenerative changes in the bone-marrow, differing from the others only in that there is also an impairment of the lymphocytic function of the organism.

I have had two very marked and fatal cases of anemia in children, differing from those previously described in having a longer course and brown pigmentation of the skin. The pigmentation was greater in one than in the other, but in both was much more marked in the areas where pigmentation is normal. They presented the characteristic picture of the skin seen in marked cases of Addison's disease. Wassermann and tuberculin tests were repeatedly negative in both, however; both had an elevated temperature at times, and neither suffered from profound muscular weakness. One had a normal systolic blood pressure, but it was low in the other. The autopsy in the first case showed that there was no disease of the adrenals. It is evident, therefore, that the pigmentation in these cases was in some way connected with the anemia and was not due to disease of the adrenals. Except that both of these children had very small numbers of both red and white cells, their pictures were quite different in other ways.

One of them died when $8\frac{1}{4}$ years old, having had symptoms of anemia for more than three years. An examination of his blood made two years before I saw him, a short time before his death, was not markedly different from the one made at that time, which was as follows: Hemoglobin, 15 per cent.; red corpuscles, 860,000; white corpuscles, 8,000; small mononuclears, 61 per cent., and large mononuclears, 11 per cent.—5,760; polynuclear neutrophiles, 25 per cent.—2,000; eosinophiles, 0.5 per cent.; basophiles, 2.5 per cent. The red corpuscles showed little achromia, but marked variation in size and shape, with a tendency to a predominance of large forms. There was an occasional stippled red cell. Ten normoblasts and one megaloblast were seen to each 200 white cells. The blood platelets numbered 12,900.

He was fairly developed and poorly nourished. There were a few small lymph nodes in the neck. The liver was palpable 5 cm. below the costal border, but the spleen could not be felt. The anatomic and microscopic findings at autopsy admitted no other diagnosis than pernicious anemia.* In spite of certain differences in course and physical signs, the general resemblance to the other cases is evident, showing that this case belongs in the same general category. There is the same apparently marked, but really slight, increase in the number of mononuclear cells, and the same marked absolute diminution in the number of the polynuclear neutrophiles and blood plate-

*American Journal Diseases of Children, 1917. Vol. xiv, p. 391.

lets. The red corpuscles show, however, a somewhat greater attempt at regeneration on the part of the bone-marrow.

The other case was a little girl whose skin began to turn brownish-yellow when she was eight years old. The first marked symptom was a severe nosebleed six months later. She was seen two weeks afterward. She was well developed and nourished. The skin was everywhere a dirty yellow, deepening to brown in the axillae and groins and about the nipples. The mucous membranes were pale. There was no enlargement of the peripheral lymph nodes and the liver and spleen were not palpable. Her blood showed: Hemoglobin, 25 per cent.; red corpuscles, 1,344,000; white corpuscles, 3,000; small mononuclears, 67 per cent., and large mononuclears, 11 per cent.—2,340; polynuclear neutrophils, 22 per cent.—660. The red cells were fairly uniform in size, shape and staining qualities. There were no nucleated cells.

She was under observation most of the time until her death, fifteen months later. She had repeated severe nosebleeds and was transfused several times, with temporary improvement. Much of the time she was up and about, seemed to feel well and was always happy. The brownish of her skin increased and finally became very marked. The peripheral lymph nodes were never enlarged and the spleen was never palpable. The liver was somewhat enlarged at the last. The blood picture never changed materially. The blood platelets were always very much diminished. The bleeding time was once as long as thirty-two minutes. The coagulation times varied between four and six minutes. Partial hemolysis occurred at 0.50 per cent; complete, at 0.35 per cent. The blood, two days before her death, showed: Hemoglobin, 10 per cent.; red corpuscles, 392,000; white corpuscles, 5,600; small mononuclears, 71 per cent., and large mononuclears, 2 per cent.—4,088; polynuclear neutrophils, 27 per cent.—1,512. There was slight achromia, but no polychromatophilia; moderate anisocytosis, but no poikilocytosis. Two nucleated red cells were seen to 500 whites. The platelets were very scanty. The coagulation time was six minutes.

In this instance the normal coagulation time suggests that the condition is nearer to purpura hemorrhagica than aplastic anemia. The absence of marked morphological changes in the red cells and the relative and absolute diminution in the number of red cells are, however, far more characteristic of anemia than of purpura. The border line between these conditions is very indefinite, however, and it is likely that an aplastic condition of the bone-marrow may be associated with or secondary to purpura hemorrhagica. At any rate, this case is so much like the others that we are hardly

justified in classifying it differently and calling it purpura hemorrhagica.

In another instance, in which the duration of the illness was about twenty months, most of which time the boy was under observation, the picture was very similar to that shown in the group. His illness began when he was seven and one-half years old, with a headache and nosebleed, after which he gradually grew paler and purpuric spots appeared from time to time. The hemorrhagic tendency ceased after about six months. Shortly before this his blood showed: Hemoglobin, 20 per cent.; red corpuscles, 736,000; white corpuscles, 5,700; small mononuclears, 90 per cent.—5,130; polynuclear neutrophils, 10 per cent.—570. There was almost no achromia and no polychromatophilia or stippling. There was very little anisocytosis or poikilocytosis. One nucleated red cell was seen. The platelets were very scanty.

There was no enlargement of the liver, spleen or glands at that time, and the urine, stools and tuberculin test were negative.

His general condition improved somewhat in the next few months. A general slight enlargement of the peripheral lymph nodes developed, but there was never any enlargement of the spleen or liver. Several months later he developed an otitis media and mastoiditis, which was operated upon and cured. Neither this illness nor its cure had any especial effect on the anemia. His blood, about six months before his death, showed: Hemoglobin, 25 per cent.; red corpuscles, 1,003,600; white corpuscles, 2,500; mononuclears, 50 per cent.—1,250; transitionals, 1 per cent.; polynuclear neutrophils, 48 per cent.—1,200; eosinophiles, 0.5 per cent.; mast cells, 0.5 per cent. The red cells showed slight achromia and polychromatophilia. There was a slight tendency to macrocytosis, but almost no poikilocytosis. There was no stippling and no nucleated cells were seen. The platelets were very much diminished.

This case apparently belongs in the same group of severe anemias due to impairment of the functions of the bone-marrow. It evidently does not belong among the purpuras. It is also evident that it was not due to infection from the ear, because its course was the same before, during and after the otitis media and mastoiditis.

The following case, in which the anemia was undoubtedly due to infection or intoxication from otitis media, shows how similar the blood picture in such a condition may be to that which we have been considering. This boy, after having a discharging ear for nearly six months, became pale and weak quite rapidly during the next month. When seen then at two years and eight months he was very pale, there was a general slight enlargement of the peripheral lymph nodes, the liver was palpable 5 cm. and the spleen 3 cm. below the costal

border. There was a foul discharge from the right ear. The blood showed: Hemoglobin, 25 per cent.; red corpuscles, 1,272,000; white corpuscles, 6,600; small mononuclears, 38 per cent.; and large mononuclears, 15 per cent.—3,498; polynuclear neutrophils, 42 per cent.—2,772; eosinophiles, 3 per cent.; mast cells, 2 per cent. There was marked achromia, some polychromatophilia, and considerable variation in the size and shape of the red cells. Six normoblasts and three megaloblasts were seen for each 100 white cells. The platelets were not noted.

The low white count and the absolute diminution in the number of polynuclear cells are noteworthy. It is also noteworthy that the bone-marrow is attempting to regenerate the red cells.

Under treatment and after the removal of the tonsils, he improved in every way, and the glands, liver and spleen diminished in size, although the ear continued to discharge. The blood improved markedly in every way, but there was never any leukocytosis. He returned four months later, covered with large and small purpuric spots and bleeding from the gums. The cervical lymph nodes were much enlarged; the liver was palpable 5 cm. and the spleen 6½ cm. below the costal border. The examination of the blood was incomplete, but it contained 43 per cent. of hemoglobin, 2,992,000 red corpuscles and 29,000 white cells, 85 per cent. of which were mononuclears. He was transfused, but continued to bleed for a month, when he stopped. The glands in the neck were very large, his ear discharged freely, the wound in the neck made for the transfusion was open and septic, and he had difficulty in breathing. He was then taken from the hospital against advice. His blood at that time showed: Hemoglobin, 32 per cent.; red corpuscles, 1,688,000; white corpuscles, 2,800; small mononuclears, 82.5 per cent., and large mononuclears, 3 per cent.—2,349; transitionals, 2.5 per cent.; polynuclear neutrophils, 10.5 per cent.—294; eosinophiles, 0.5 per cent.; basophiles, 1 per cent. There was marked achromia, but no nucleated red cells. No platelets were seen.

After his return home a retropharyngeal abscess apparently ruptured and drained into the throat. He had many abscesses in various parts of the body, which were opened and drained. He gradually recovered. He is now nine years old, and, according to his physician, perfectly well, although his blood has not been examined. Interesting points in this case are that it shows that infection can so greatly depress the productive powers of the bone-marrow and thus bring on a blood picture materially different from that usually seen in infections. It suggests the possibility that an infection or intoxication may be at the root of the severe anemias which we have been con-

sidering, even though there is no evidence of any source of infection or intoxication.

SUMMARY.

Myelogenous leukemia is a most unusual condition in childhood. Lymphatic leukemia is uncommon, but occurs much more frequently than the myelogenous type. More common than either is a very severe and rapidly fatal type of anemia, in which there is a most profound depression of all the functions of the bone-marrow. In certain instances there may be associated with it an increase in the productiveness of the lymphatic organs. The line between this condition and lymphatic leukemia is at times somewhat indistinct. It strongly resembles, if it is not identical with, the aplastic anemia of adults. Its relation to the purpuras can only be determined by more careful study by modern methods. Its etiology is not evident, but analogy suggests that it may be the result of some intoxication or infection. The ordinary type of pernicious anemia of adults is extremely rare in childhood.

REPORT OF PROGRESS IN ORTHOPÆDIC SURGERY.

By M. N. SMITH-PETERSEN, M.D., BOSTON.

THIS report is based upon the "Report of Progress in Orthopædic Surgery," as published in the *Archives of Surgery*, January, 1922. As an introduction, I would like to quote from the Presidential Address of Major-General Sir Robert Jones in the British Orthopædic Association; he defines the scope of orthopædic surgery as follows:

1. Fractures—recent, mal-united, and un-united.
2. Congenital and acquired deformities of the extremities.
3. Paralysis of the extremities.
4. Diseases and disabilities of the joints, including the spine.

He suggests a scheme for hospital organization. In a general hospital of three hundred beds, he believes forty is a fair proportion to allocate to orthopædic surgery, with beds in the country for children,—the general surgeon having a right to treat any case or group of cases of extremity surgery in which he is especially interested. His aim, as is the aim of all fair-minded orthopædic surgeons, is not to take away from the general surgeon any group of cases in which he is interested, and to the treatment of which he is willing to bring devotion and skill, but to bring about a more speedy restoration of function by stimulating the interest and developing the skill of a certain group of surgeons, to whom this type of case appeals as

an interesting surgical problem and as a humanitarian necessity.

The following outline will form the skeleton of the report:

1. Congenital conditions.
2. Tuberculosis.
3. Diseases of nutrition or faulty metabolism.
4. Inflammatory conditions.
 - a. Arthritis.
 - b. Osteomyelitis, etc.
5. Statics or body mechanics.
 - a. Posture.
 - b. Foot strain and foot deformities.
6. Paralysis.
 - a. Anterior poliomyelitis.
 - b. Spastic paralysis.
7. Syphilis.
8. Scoliosis.
9. Neoplasms.
10. Tendon, bone and joint surgery.
11. Peripheral nerve injuries.
12. Dislocations.
13. Fractures.

I. CONGENITAL CONDITIONS.

Congenital Dislocations of the Hip.—This condition and its treatment again furnishes material for active controversy, as at different times in the past. There are three methods of treatment—the closed method by brutal force, with or without traction machine; the closed method by gentle manipulation; and reduction by the open method. Reduction by brutal force is growing out of fashion—partly because of the deformities which were a direct result of this method, and partly because brutal force is not required. A great many functionally good hips have, unquestionably, resulted from this method. Reduction by gentle manipulation is growing in favor; its chief promoter, Professor Denucé of Bordeaux, France, has been able to demonstrate to the satisfaction of the most critical and doubting mind, better functional and better anatomical results than any clinic in this country can demonstrate. As for open reduction, some men, such as Galloway, go as far as to advocate this method, to the exclusion of the other two. There are, undoubtedly, old cases, and some young, difficult cases where this is the only way, but open reduction is by no means an easy operation—especially not when the operator finds the acetabulum a cartilaginous prominence, instead of the promised concavity shown in the x-ray. The open method should then not be used unless the gentle, closed method has failed.

Congenital Equinovarus.—Again the knife versus force. In this case, however, the situation is somewhat different, as a combination of the two frequently is the most efficient. In young cases, application of corrective plasters

will, as a rule, be successful. In older cases, Dr. Ober's operation¹ is a helpful, logical procedure.

II. TUBERCULOSIS.

No motion, no tuberculosis. This is the keynote in the treatment of all joint tuberculosis. In children, where the element of time is of relatively slight importance, and where we have growing epiphyses to deal with, immobilization by plaster or splints, accompanied by heliotherapy. In adults, surgical intervention is the keynote of treatment, as soon as an absolute diagnosis has been made. Fusion and bone-grafting operations of the spine, arthrodesis of the sacro-iliac joint, arthrodesis of the hip, excision of the knee—all with the same aim, elimination of motion. In the majority of cases, these procedures are successful. A word of warning: For years it has been taught that tuberculosis usually is monarticular; it usually is, but secondary foci are not rare. We find secondary foci in the spine, where the primary focus has been cured by bone graft, or by fusion operations. We find secondary joints, we find secondary foci in kidneys, and last, but not least, we have tubercular meningitis. In tuberculosis of the ankle, in the most severe adult cases, amputation seems the rational procedure. It saves time and gives the patient a member he can trust, rather than a painful foot, which is apt to be the source of secondary foci. The shoulder and elbow may be treated by arthrodesis, but, not being weight-bearing joints, they respond better to immobilization than the joints in the lower extremity. The wrist is questionable; excision of the wrist, with fixation in dorsal flexion, is a very useful procedure; amputation—radical as this procedure may seem—should be seriously considered in extensive cases with sinuses. Where the time element does not play an important part, immobilization treatment by splints or plaster is the most common method of treatment.

III. DISEASES OF NUTRITION OR FAULTY METABOLISM.

Rickets.—Experimental work seems to prove that phosphorus, cod liver oil and sunlight restore the bones to normal nutrition. As regards corrective treatment of deformities resulting from rickets, some men favor osteotomy, some osteoclasis. Osteotomy is usually favored when the maximum curve occurs near a joint. Actinotherapy, by means of the quartz lamp, has been found useful in the treatment of rickets.

Osteomalacia.—Interest in this condition has been stimulated since its frequent occurrence in famine-stricken areas in Europe. This type of osteomalacia responds readily to proper food, endocrine products, and actinotherapy. The

good old-fashioned type of osteomalacia that we find in the clinics of this country is not so easily cured.

IV. INFLAMMATORY CONDITIONS.

Arthritis.—Arthritis still remains the same confusing problem, but there seems to be a steady advance toward its solution by the great amount of research work now being done in all parts of the country. Dr. Pemberton's work on carbohydrate metabolism and his general biochemical attack, are important; it is an attack from a new point of view, and has become a distinct adjunct to the routine, established method of treatment, *i.e.*, the search for, and sane elimination of the foci of infection.

Osteomyelitis.—Radical surgical intervention, so long in vogue with far from brilliant results, is gradually losing ground to conservative treatment. The principle of the conservative treatment consists in localized drainage and obliteration of cavities. The latter is brought about by the turning in of fat or muscle flaps into the osteomyelitic cavity.

V. STATICS OR BODY MECHANICS.

Posture.—Effect of posture on general health is generally accepted. Correction of posture, correction of ptosis, restoration of chest to proper functional position, have an undisputed effect on general health. Local conditions affecting digestive system, respiratory system, and functional conditions of the nervous system will be indirectly affected.

Foot Strain and Foot Deformities.—Treatment of strain consists in rest followed by exercise. Rest is brought about by supports, plates, or Thomas heels; surgical interference is rarely indicated.

Hallux Valgus.—Surgical treatment should aim at correction without destruction of weight-bearing point of first metatarsal; Kellar's operation², therefore, is growing in favor.

VI. PARALYSIS.

Anterior Poliomyelitis.—Etiology *in statu quo*. Treatment in early stages remains the same as it has for some years past,—anatomic rest during the acute stage, *i.e.*, for from one to two months, followed by muscle reëducation. In regard to surgical interference in later stages, emphasis must be laid on careful study of all muscle groups, analyzing their effect on the particular deformity to be corrected. Astragalectomy, with posterior displacement of the foot, has been used in too much of a wholesale manner: when used in cases of calcaneus, the results should be uniformly successful.

Spastic Paralysis.—Stoffel's operation, or intra-perineural neurotomy, is growing in favor. Favorable results have been obtained from op-

erations on the popliteal and obturator nerves, for the correction of equinus and adductor spasm, respectively.

VII. SYPHILIS.

Syphilis.—Attention must again be called to the frequent negative Wassermann reactions in bone syphilis, some authors finding it positive in only 50 per cent. of the cases. Anti-syphilitic treatment plus apparatus equals distinct improvement in syphilitic joint conditions.

VIII. SCOLIOSIS.

The etiology remains varied, and in a great many cases undetermined. One factor which undoubtedly will grow in importance is the factor of trauma. We have Legg's disease of the hip; in spite of the recent report of Phemister³, trauma to the epiphysis seems the most logical etiology. The spine, like the hip, has epiphyses, and not a child escapes without more or less severe falls. Why, then, should we not have Legg's disease of the spine as a common etiological factor in scoliosis?

Fusion operation on the dorsal spine is advocated by the New York School. Good results, as far as stability goes, have been obtained. The dorsal spine is selected because the articular facets in this region are in the frontal plane, and, therefore, allow considerable lateral flexibility.

IX. NEOPLASMS.

The literature on neoplasms consists chiefly in case reports, without any distinct advance in the treatment. X-ray treatment, if conscientiously carried out, has greatly improved statistics, and promises to do even better in the near future. As end-results are more carefully studied, the failures of the most radical amputations should make us pause. In this connection, there seems to be some hope in the curative effect of the high voltage currents, but this treatment is still undeveloped.

X. TENDON, BONE AND JOINT SURGERY.

Tenotomy.—One should always think twice before interfering with muscle action. A muscle will contract in proportion to the length and tone of its individual fibers; if the tone or tension of a muscle is interfered with, the effective leverage of the muscle is decreased. Tenotomies or tendon lengthenings should, therefore, be seriously considered before undertaken,—a muscle with its tendon cut has only a fraction of its former power. The present attitude is distinctly in favor of tendon lengthenings by the step-like method of Bayer or the V-shaped method of Vulpius.

Derangements of the Knee-joints:

1. *Crucials.*—There is a distinct tendency to overcome disability secondary to ruptured cru-

cials by repair or reënforcement of the internal and external lateral ligaments: the results are favorable.

2. *Semilunars*.—Diagnosis not difficult if symptoms are carefully analyzed. Removal only after repeated displacements, or after initial displacement when attempt at reduction has proved unsuccessful.

3. *Transplantation of Bone*.—The fight is still on between autogenous and heterogenous bone grafts. There is, as yet, not enough evidence in favor of either to make a definite decision. In regard to medullary graft *versus* bone inlay, the evidence is distinctly in favor of the latter.

4. *Ankylosing Operations on the Spine*.—Polya suggests a modification of Albee's method, by which the graft is inserted at the base of the spinous processes; Forbes has a modification of Hibbs' operation. The principle of all ankylosing operations is, of course, the same; no one method will be uniformly successful. Any surgeon should be conversant with the different procedures, so as to be able to choose the one best adapted to the case in hand; sometimes a combination of two methods is advisable.

5. *Ankylosis of Sacro-iliac Joint*.—This operation is indicated in adult cases of tuberculosis of the sacro-iliac joint, and in selected cases of sacro-iliac relaxation. It has been performed with considerable success by different methods. Hertz uses a bone-peg; Smith-Petersen a dowel.

6. *Arthroplasty*.—The work of Putti is known to all; as the technique becomes perfected, arthroplasty will undoubtedly be used in many cases where arthrodesis is now the common procedure. It will never replace arthrodesis, however, especially not in the tuberculous joints. We should never undertake arthroplasty, except in well-selected cases.

XI. PERIPHERAL NERVE INJURIES.

The fantastic methods of nerve repair have all been abandoned—end-to-end suture without tension remaining as the only logical and physiological method. By end-to-end suture, good results are obtained in motor or sensory nerves; in cases of mixed nerves, results are less favorable; neurolysis is successful in the majority of cases. Where nerve suture fails, tendon transplantations will, in many cases, greatly improve function; the most striking example of this is found in the transplantations after the manner of Jones and Starr, in cases in which irreparable damage and failure of repair of the radial nerve have occurred.

XII. DISLOCATIONS.

Recurrent Dislocations of the Shoulder.—Sever depends on tenotomy of the pectoralis

major and shortening of the sub-scapularis tendon to decrease leverage and strengthen weakened inferior portions of the capsule. Thomas feels that reefing of the capsule is sufficient. Both procedures are successful in the hands of the authors, in the majority of cases.

XIII. FRACTURES.

Dr. Osgood, in his article on "The Standardization of Methods of Treatment in Orthopaedic Surgery and in Industrial Surgery of the Extremities and Spinal Column,"⁴ concisely summarizes the present attitude in the treatment of fractures: "In the early treatment of fractures of the long bones, the essential factor in relieving pain, securing alignment, maintaining fixation, and in general minimizing shock, is traction,—traction immediately applied and maintained without remission until union has begun and muscle spasm has ended. Of course, we must have radiographs in two planes, or better, stereoscopic. We must have fixative splints, alone or in conjunction with Balkan frames, weights and pulleys, but we must have traction before all these,—traction of the earliest possible moment. If there is danger that joints will become ankylosed, let us be sure that the position of ankylosis is that of greatest function—a shoulder in 70-80° of abduction; the upper arm half-way between the mesial and horizontal planes in slight outward rotation; the elbow, depending on the occupation, one side or the other of the right-angle position, but never in extension; the wrist in half-normal, dorsal flexion; the hip in slight flexion and slight abduction and slight outward rotation; the knee in 10° of flexion in a man who must walk well and stand at his work, but in 20-30° of flexion in most women, who sit at their tasks; the foot at a right angle to the lower leg, and never abducted."

For complete abstracts of articles dealing with orthopaedic surgery, I refer the reader to the "Sixteenth Report of Progress in Orthopaedic Surgery."⁵

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- ² Keller, W. L.: *N. Y. Med. Jour.*, April 6, 1912.
- ³ Phemister, D. B.: *Arch. of Surg.*, March, 1921.
- ⁴ Osgood: *Illinois Medical Journal*, April, 1921.
- ⁵ *Archives of Surgery*, Jan., 1922, vol. iv, pp. 200-235.

DR. MAURICE BLOOM of England, who has recently visited the United States, contends that within one hundred years every person in this country will be wearing glasses. He suggests that we are traveling at a pace that kills, and calls attention to the amount of work which is done under artificial illumination. We work too much, our systems are overtaxed, and we are abusing our eyes by reason of improper arrangements for proper lighting facilities.

SPEECH DEVELOPMENT IN CRIPPLED CHILDREN. REPORT OF ONE HUNDRED AND TWO CASES.*

BY CHARLES G. STIVERS, M.D., LOS ANGELES, CALIF.

Chief of Speech Clinic and Chief of Ear, Nose and Throat Department, Orthopaedic Hospital-School.

ONE of the psychological problems of the crippled child is that of the voice and speech. A recent survey of one thousand and forty-four (1044) cases admitted to the Orthopaedic Hospital-School, of Los Angeles, during the years 1918-1919-1920-1921, shows that eighty-two (82), or over seven and one-half ($7\frac{1}{2}$) per cent., had, with their orthopaedic trouble, some form of speech defect. In reality the survey does not include two hundred (200) cases admitted prior to 1918 and in which there was no mention made of any existing speech defect. Applying the percentage of the later admissions to these two hundred (200) cases will give fifteen (15) more cases probably existing but not mentioned, owing to the fact that the diagnosis and treatment of speech defects was not being made at that time. A grand total then of ninety-seven (97) cases out of one thousand two hundred forty-four (1244) orthopaedic admissions gives a percentage of about eight (8) per cent. Contrast this figure with the percentage of speech defects in school children of the United States and Europe, namely, one (1) to two (2) per cent., and the enormous relative disproportion is apparent at a glance. In other words, there are from five (5) to ten (10) times as many speech defect cases amongst the handicapped as there are amongst a similar number of other children of school age.⁹

It is evident that some special reason should exist for this great disproportion, and that reason is undoubtedly found in the nature of the pathological processes that are the cause of the various motor paralyses, incoördinations and ataxias. Whether crippled children have a more unbalanced nervous system, due to their hypersensitiveness, is not taken into consideration in this article, but is undoubtedly a factor in the large percentage of speech defects found amongst them.

Birth injuries, resulting in motor paralyses of one or all of the limbs, often include damage to the speech centers in the cerebral cortex and to the central nuclei, caudate, lenticular and red and optic thalami with injury to the speech area.

Polio-encephalitis (Strümpell), with resulting motor paralyses as a sequel to the cerebral lesions, occasionally attacks and may damage the speech centers; in fact some cases in this list are of encephalitis.

In general terms it may be stated that any pathological process, whether it be inflammation (intracranial or intraspinal) at or after

birth, or trauma resulting in the actual loss of substance, the formation of cysts, cicatricial bands or pachymeningitis associated with the integrity of motor or sensory areas of the brain, including those of speech, will of necessity result in either lack of sensory perception of the spoken or written word or failure to develop speech, either written or spoken, or both.

The faculty of speech is one of the intricate muscular coördinations, and when the power to coöperate the various parts of the speech function—namely, ideation, respiration, phonation and articulation—is lost from any cause whatever, language production will either be entirely absent or imperfect.

When we remember that speech is a form of motorized thought,—motion picture ideas in fact,—and that gesture is the primitive speech racially, we realize how impossible it is for a case of disordered muscular coördination² or motor paralyses of one or all of the limbs to develop that stage of seemingly purposeless muscular activity with coöing, that comes between birth and the time of development of the spoken word. The crippled child cannot lay the foundation for spoken and written speech and gestures (O'Shea,⁶ "Linguistic Development and Education").

The normal child has learned to respond by appropriate acts to its doll, bottle, etc., and to hundreds of other objects. These habits are essential to the formation of language habits. (Watson, John¹⁰: "Behavior," pp. 328-329.) The crippled, the spastic, the incoördinated child cannot form habits of response to objects, and its language development may be hampered, delayed, undeveloped, by reason of its physical handicap.

To the paralyzed child is denied even the hope of learning to express the thought by the so-called manual form of speech training used with deaf children.

THE IMPORTANCE OF THE KINAESTHETIC MEMORY.

In health every muscle movement is registered in the muscle memory center or movement memory centers in the cerebral cortex. Muscle movement memories spring from previously existing memories stored in the brain³ and no voluntary or conscious muscle movement is possible without first calling on the already stored memory. If normal children with normal speech have placed in their brains, through endless repetition, perfect muscle movement memories, these can be evoked and through a perfect coördination of the necessary systems, normal speech is produced.

The paralyzed, incoördinated, atrophic or spastic child, who has uncontrolled or unintelligible gestures or no purposive movements or no speech or imperfect speech, has, of necessity, stored in his brain only imperfect muscle memories. Voluntary movements must be sec-

* Read before the Sixty-fifth (65th) semi-annual meeting of the Southern California Medical Society, November 5th, 1921.

ondary not primary functions of our organism.⁵ It follows then that in the crippled child, only imperfectly executed muscular movements will result when the effort to gesture or speak is made.

A concrete example of the working of imperfect muscular memories is seen in the imperfect speech of the cleft palate case even after a perfect operation for closure of the palatal defects has been done. The physical mechanism may be in a normal condition but the memories of muscle movement, already stored in the brain by the child, are the imperfect ones resulting from the use of the imperfect physical mechanism. In the reëducation of the cleft palate case each sound has to be remade correctly by him a sufficient number of times until the perfect record is indelibly impressed on neurons in the brain center, whence it may on occasion be called forth by the demands of speech.

Realizing that many orthopædic cases take months and even years of treatment, it becomes imperative to provide a suitable form of speech training for the development of speech where it does not exist and for the correction of defects when they are present.

Many of the speech defect cases herein mentioned had some endocrine disturbance. Endocrine treatment and supervision has been of value in many of the cases. Recognizing the importance of the internal secretions on the regulation of function, the appropriate endocrine medication has been prescribed by Dr. Clifford A. Wright in every case where indicated, before the speech training was begun.

Speech in a normal child develops after a cooling, seemingly purposeless, bilateral movement period.⁶ In crippled children there is no such "pre-speech" period and when the child's desire for expression has grown to a point where it demands motion or action, there are no muscular movement memories, no trained, coördinated movements to be utilized; first as gestures, then as oral or written speech.

The development of speech and the correction of speech defects, it was realized, was but a part of the training in muscular coördination and all but five (5) of the cases were under the care of the Orthopædic Hospital-School staff.

The lack of control of the muscular system and its hyperaction, so characteristic of the spastic case, is manifested in an inability to make and maintain the proper moulds or shapes for vowel and consonant sounds, hence, the rough, rasping voices of such children. The spastic lacks inhibition, smoothness, rhythm, balance and tone inflection. Few are able to whistle or sing a tune and their breathing is generally very shallow.

DROOLING.

A very noticeable feature of many crippled children is the drooling or overflow of saliva

from the mouth over the lower lip. This results often from the palsy of the cheek, tongue, lip and pharynx muscles, or sometimes the drooling results from a muscular incoördination or a spastic condition of the salivary glands. The strengthening and coördination of muscular effort that comes from speech drill has a markedly beneficial effect on the drooling; in many cases causing it to disappear entirely.

THE SPEECH DEVELOPMENT.

It must be seen at the outset that no speech development independent of the training of the other muscular systems can be undertaken with any hope of success. The spastic's entire controlling, inhibiting power is undeveloped and must be brought to a degree of practical use before real progress can be made. For this reason the orthopædic surgeon puts at rest the hyperacting limbs, and nervous energy ceases to be lost. Various surgical operations, followed by suitable casts, braces and physio-therapeutic treatment, will stop the most of the loss of nervous energy (motor activity is a biological necessity for development) and it is only after some degree of coördination of muscular effort is attained that the spastic can begin to use his hands to grasp things within the reach of his tactile sensation. Repetition of movement leads to habit formation^{3, 4} and to the placing of a definite muscle movement memory in the brain. The entire range of muscular movement memories must be removed and by reëducation and coöperated movement, the kinæsthetic sense developed. The speech machine must be reëducated at the same time in order that the entire muscular system may be put in proper functioning order; that is a biological necessity.

I agree with the following on the judgment of mental status: "The judgment of mental status of the cerebral spastic child is singularly difficult. The patients are almost always restricted to a very narrow life, and speech difficulties are usually marked. No doubt many crippled children are judged too severely and regarded improperly as idiots or imbeciles. The combination of set expression and speech defect with extreme awkwardness creates an impression of defective mentality that is hard to overcome." (Crothers, in *Medical Clinics of North America*.⁸)

The mental training of crippled children is attracting more and more attention, and surely the faculty of speech, one of the most essential, personal and intimate avenues of expression, deserves to be kept alive, to be strengthened and put in working order in these handicapped children. This work is a very recent development and has received very little attention from specialists.¹ Scripture devotes one (1) page to it and calls it "spastic speech" but suggests no treatment. Bluemel⁷ mentions it.

ORTHOPAEDIC HOSPITAL-SCHOOL PATIENTS WITH SPEECH DEFECTS.

October 1, 1921

Total number of cases examined.....	1020
Number of patients with speech defects.....	82
Number of patients with no diagnosis of speech defect.....	15
Total	97

	Age Entered	Present Age	Age Examined	Psych. Age	I-Q	Diagnosis	Part Affected
F.	2-11	4-10	3- 3	2-		Spastic Diplegia	Legs and Right Arm
S.	2- 6	3- 8	2-	-11		Spastic Paraplegia	Legs
C.	12-	12- 7	12-	6- 8	55	Spastic Paraplegia	Legs
T.	6- 9	7- 5	6-10	3- 2	46	Spastic Hemiplegia	Right Side
C.	10- 9	12- 7	10- 9	8- 2	Ret.	Infantile Paralysis	Left Leg
H.	7- 6	9- 8	7- 6	8-	Br.N.	Infantile Paralysis	Left Arm
J.	2-10	3- 3				Tubercular Humerus	Right
M.	2- 1	3- 6	3- 2	3- 2	100	Spastic Hemiplegia	Right Side
A.	9- 2	10- 3	9- 4	4- 4	46	Ataxia	Legs
					Sub.		
K.	4- 3	5- 4				Micro-cephalic	Entire Body
						Ant. Dislocation H ps	
E.	8- 1	8-11	8- 3	2- 8	H.Sub. (Mongoloid)	Relaxed Posture	Posture
						Endocrine	
						Subnormal	
V.	3- 3	3- 7				Spastic Diplegia	Legs and Right Arm
M.	7- 5	8-10	8- 6	4- 2	50	Muscular Incoordination	All Extremities
J.	4- 4	7- 5	5- 3	3- 3		Jacksonian Epilepsy	Body
G.	3-	7- 3				Birth Palsy Spastic	Right Side
V.	12-	13- 4				Spastic Diplegia	All Extremities
V.	4-	5- 5				Muscular Incoordination	All Extremities
F.	7- 4	10- 5				Cerebral Palsy	All Extremities
						Incoordination	
P.	19- 7	20-	19-	11-11		Spastic Monoplegia	Left Arm
				H. Sub.			
F.	4- 9	5- 2				Spastic Paraplegia	Legs
T.	4- 6	7- 8				Spastic Diplegia	All Extremities
K.	5- 8	6- 5				Facial Paralysis	Right
F.	12-	14- 2	12-	9- 2		Prog. Muscular Atrophy	Back and Extrem.
E.	12-	15- 2	12- 7	10-		Spastic Hemiplegia	Left Side
A.	8- 1	10- 8	8- 3	6- 4		Friedrich's Ataxia	Legs
S.	11-10	13- 5	11-10	12- 4	Br. N.	Infantile Paralysis	Left Leg
S.	6- 3	8- 9				Spastic Paraplegia	Legs
M.	9-	12- 5	11-10	8-10	74	Pseudo-Hypertrophy	Legs and Arms
R.	5- 2	7- 1	6- 9	6- 4	93	Spastic Hemiplegia	Right Side
M.	7- 6	7-10	8- 7	7- 2	81	Muscular Incoordination	Legs and Arms
L.	7-	10-				Paralysis from Spinal Meningitis	All Extremities
M.	5-	6-	6-	4-10	Ret.	Spastic Monoplegia	Right Leg
E.	10-	13- 1	10-	6- 4		Friedrich's Ataxia	Legs
T.	12-	15- 1	12- 1	10-		Friedrich's Ataxia	Legs
M.	9-	10- 5				Relaxed Posture	Posture
B.	9-	9- 6	9-	9- 6	100	Incoordination	
I.	8-11	10- 2	8- 9	7- 3	Ret.	Tubercular Knee	Right
	15-10	16- 8	15-10	7- 8	48	Ankylosis Hip after	Right
					H. Sub.	Old Septic Arthritis	
	13- 7	15- 6	(Mental Defective)			Scoliosis	Back
						Mentally defective	
L.	3- 9	5- 6	4-10	4-	83	Spastic Paraplegia	Legs
					Ret.		
M.	11- 5	12- 6	11- 5	6- 4	63	Scoliosis Spastic Monoplegia	Back and Right Leg
						Mentally defective	
	18-	23-				Muscular Incoordination	
R.	4-	4- 4	4-	2- 4	60	Spastic Paraplegia	Legs
P.	3- 6	5- 5			Idiot	Mongolian Idiot	
O.	7-	9-			Idiot	Cervical Kyphosis	Neck
						Mongolian Idiot	
R.	12-	15- 4				Spastic Paraplegia	Legs
	2- 8	3- 3				Spastic Hemiplegia	Right Side
M.	11- 9	12-	11-10	9-10	84	Spastic Diplegia	All Extremities
D.	14-	17-				Scoliosis Flat Feet	Back, Feet
R.	5-	7- 8				Spastic Hemiplegia	Right Side
F.	14-	17- 3	15-	8- 1		Spastic Hemiplegia	Right Side
M.	9- 3	9- 4				Bilat. Syndactylism hands	Hands
D.	7- 6	9-	7- 6	5-		Spastic Diplegia	Right Arm and Legs
L.	9- 4	9-10	8- 6	-11		Spastic Diplegia	All Extremities
B.	8-	12- 4				Infantile Paralysis	Right Leg
							Left Side Face
							All Extremities
T.	3- 1	3- 4				Spastic Diplegia	All Extremities
P.	15-	18- 7				Spastic Hemiplegia	Right Side
G.	11- 9	13- 1	11- 9	5- 1		Scoliosis Subnormal	Back

Name	Age Entered	Present Age	Age Examined	Psych. Age	I-Q	Diagnosis	Part Affected
R. B.	3- 1	5- 4				Spastic Paraplegia Incoordination	Legs
R. H.	7-11	8- 6	8-	4- 4	55	Relaxed Posture	Posture
A.	13-	15- 6	14-	7- 2		Spastic Paraplegia	Legs
N.	11- 7	13-10				Scoliosis Flat Feet	Back, Feet
J.	13-	14- 9				Mentally backward	All Extremities
J.	2-	2- 6	2- 1	1- 8		Spastic Diplegia	All Extremities
S.	13- 2	13-11	13- 3	11-	83	Spastic Diplegia Kypho-scoliosis Flat feet	Back and Feet
C.	15- 4	16- 3	15- 4	6- 6	H. Sub.	Spastic Diplegia	All Extremities
D.	9- 8	10- 8	9- 8	5- 8	58 Sub.	Muscular Incoordination	All Extremities
W.	13- 9	15- 8	13- 9	4- 2	H. Sub.	Relaxed Posture Jacksonian Epilepsy Mentally subnormal	
R.	13-	14- 3	13-	11- 4	Ret.	Spastic Diplegia	All Extremities
T.	15-	17- 1				Spastic Diplegia	
R.	15-	19- 3	17- 8	12-	Ret.	Spastic Demiplegia	Left Side
R. F.	16- 5	16-10	16- 5	9- 6	58	Muscular Incoordination	All Extremities
W. L.	3- 1	3- 3	4-	1- 4		Muscular Incoordination	Legs
E.	15- 3	15- 9	15- 3	6-	Sub.	Spastic Diplegia	All Extremities
G.	3-	3- 6	3- 6	2-10		Spastic Diplegia	All Extremities
C.	4-	7- 4				Spastic Diplegia	Left and Right Arm
R.	4- 7	4- 8	4- 8	4- 4	93	Muscular Incoordination	All Extremities
W.	14- 6	14- 8			Adult	Rigid total round back	
W.	13- 3	13- 4			38	Incoordination	
W.	15- 2	15- 3			66	Spastic paralysis	
K.	15- 8	15- 9			62	Spastic paraplegia	
I. R.	13- 1						

On a recent visit to the cities of New York, Philadelphia and Boston I asked many orthopaedic surgeons and speech defect specialists whether they were doing anything for the language ability of their orthopaedic patients, and in most cases received the answer, "No, I never thought they could be benefited." It was not till I reached the University of Iowa in my search that I was rewarded by finding a speech clinic with an orthopaedic surgeon who was alive to the necessity for speech training in crippled children and keen to hear what was being done here in Los Angeles.

Speech training alone as a biological necessity in the utilization of muscular coordination to express emotion, does some definite things for crippled children. First, it correlates muscular activity with mental images in the expression of emotion; Second, develops association paths in the brain; Third, develops more breathing power, more oxygen, better circulation, better voice; Fourth, increases inhibition of purposeless, energy-wasting muscular movement; Fifth, develops motor-mindedness; Sixth, strengthens and coordinates muscles of the tongue, lips, throat and cheeks; assists in the cure of drooling.

It is evident that only oral expression can be developed in a spastic, especially in right-handed cases. The attempt to hold a pencil or chalk so intensifies the spasticity that the effort results in breaking the pencil point or chalk, or in dropping it from the hypercontracted fingers. Small muscle movements are not attempted in the reëducation of a spastic child; only gross movements, slow and rhythmic,

often with music or the metronome, and at first not purposeful, are used.

Goddard, in his "Psychology of the Normal and Abnormal," makes the statement that the pattern for action resides in the neurons and that the patterns are hereditary or acquired. Hereditary patterns must result from a persistence of impressions transmitted from parent to child. Granted that the crippled child is normal mentally, that is, he has a normal amount and distribution of brain cells, then he has normal hereditary *neuron patterns*. If the proper stimulus is applied, these neuron patterns can be awakened and normal responses evoked; hence training in muscular coordinations, gymnastics, physiotherapy, speech-drill, etc., can reasonably be expected to produce more activity of brain cells, more mental development, because all functions of the nervous system are facilitated by repetition (Herrick). The exception to this would be those cases of paralysis resulting from meningitis or infantile palsy where the disease has resulted in the actual loss of neurons.

Through the working of that principle in neurology as well as in physics known as the "Summation of Stimuli," a term used to express the fact that a nerve path once having been used, the nerve energy once passed over a certain line of neurons, those neurons are somehow modified or changed by that passage and the effect is permanent; it is never entirely lost. When a second stimulus comes, it not only passes over *that line* somewhat more easily because the pathway has been used before, but the effect is added to the previous effect and that path becomes the favored path (Goddard).

Then by association fibers any brain center may be stimulated. These facts are some of those at the bottom of the training of crippled children through speech-drill combined with gymnastics and physiotherapy.

The work is only in its early stages and this is a report only meant to show by the enormous percentage of cases requiring speech training, the practical place for a department for speech development in every orthopædic hospital.

Our progress is slow, but our results have been very satisfactory. We can definitely assert that speech reëducation has a definite place in the training of crippled children because, combined with physiological rest of the affected parts, and with physiotherapy, it does five things. First, it saves energy; Second, allows the development of coördination; Third, it improves nutrition; Fourth, develops mental ability, and Fifth, it increases inhibition, thereby increasing the saving of nervous energy.

In collaboration with members of the Orthopædic Hospital-School of Los Angeles, I have put into practice the following plan for the development of normal speech in spastic and other orthopædic cases.

The Director of Physical Education, Miss Sue Roen, and I, have found that our treatments overlap and that the more closely we co-operate the better the results obtained. The exercises given below have been found in practice to meet the requirements. In the great majority of cases modifications are necessary to suit the individual.

EXERCISES FOR SPEECH DEVELOPMENT IN SPASTICS, MOTOR PARALYSIS FOLLOWING INFANTILE PARALYSIS, MUSCULAR INCOÖRDINATIONS AND ATAXIAS.

1st, Absolute quiet and alone with patient.

2nd, Relaxing Phase.

- A. Metronome counting.
- B. Music—instrumental or vocal.
- C. Sing-song rhyme.
- D. Relaxing massage (stroking tense muscles).
- E. Tepid bath.
- F. Breathing.

3rd, All movements slow and rhythmical.

4th, Extension work only.

- A. With assistance if needed.
- B. Against resistance.

5th, All gross movements (mass movements).

Gradually work toward finer movements. Tensing weak groups and relaxing contracted groups alternately.

- A. Muscle movement for arm—out—away—up.
- B. Muscle movement for leg—out—away—back.

- C. Muscle movement for trunk—balancing between upright supports. Walking with feet separated (straddle gait) and kept apart by upright board. In sub-normal cases the inclined board is used.

Side flexion, lying prone—which takes in head work, back and leg work.

NOTE: Swimming as a whale or hippopotamus and coming up to blow will answer the requirements in the hyperextension work and it includes arm, head, back and breathing exercises.

It is essential to make a game or play out of the work.

In a subsequent article supplementary to this one I will give in detail the drill in breathing with and without the limb movements, and the phonetic drills and vowel practice I have found to meet the requirements in these cases.

RESULTS AND CONCLUSIONS.

Owing to lack of trained assistants the speech development has been tried in only a few cases, but the results justify the conclusion that definite progress has been made. Two (2) boys, eight (8) and ten (10) years respectively, who could not tell one letter or sound from another or read the simplest words of one syllable or perform tasks in simple numbers, have learned to read and figure. They now read silently and aloud simple stories and poems. Two (2) cases of stammering have been arrested and two (2) cases of lisping, the "oral inactivity" of Dr. Blanton, have been corrected. In addition the language ability of five (5) has been improved and two (2) cases of motor paralysis, following epidemic poliomyelitis, have made progress in speech.

Drooling has ceased almost entirely in every case in which speech drill, muscle training, physiotherapy and other orthopædic treatment has been instituted.

The mental development, language ability, walking, eating, drinking and playing of all our spastic cases have improved so greatly under this form of treatment that we are obliged to conclude that the pessimistic attitude of many observers relative to mental training of crippled children must undergo considerable modification in the light of our achievements.

The mental tests were made by Mrs. Trippet, the Clinical Psychologist.

Thanks are due to Dr. Charles L. Lowmar for helpful suggestions, and to my wife for assistance in training.

SUMMARY.

Spastics	39
Incoördinations	10
Faulty Posture	7

Ataxias	6
Infantile Palsy	5
Subnormal	3
Facial Palsy	1
Tubercular knee	2
Epileptic	2
Pseudo-hypertrophy	1
Progressive muscular atrophy.....	1
Miscellaneous	5

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DISCUSSION OF DR. STIVERS' PAPER.

Before the discussion Dr. Stivers showed six cases; three, of Friedrich's ataxia; two, of spastic palsy; one, of muscular incoördination, all exhibiting marked defects of voice and speech.

Discussion opened by Dr. Charles L. Lowman (he said in part): I should like to express my appreciation and approval of Dr. Stivers' paper and emphasize one or two points.

First, we have noted that the training of the speech mechanism undoubtedly aids in other aspects of the psycho-motor development in our work with legs and arms, especially the latter, as the arms and hands are used in gesture and in place of and with speech under impulses which are racially old and thus more easily obtained than some of the other movements.

Second, as surgeons we have been too prone to think of the muscles as so many cords fastened to bones to be pulled this way or that and to be handled with impunity, surgically. We must begin to recognize that muscles are actually part of the brain mechanism in that they are the instruments of expression for the mind.

The training in these spastic cases requires an analysis of the mental and physical faults and the appreciation of normal and necessary sequence such as the doctor has mentioned in relating speech movements and body or arm movements.

I wish to heartily endorse the statements he has made and congratulate him on this very able presentation.

DR. F. L. ROGERS of Long Beach: Dr. Stivers has contributed a very helpful paper. He is doing real constructive work with these handicapped children who are being fitted to take their places in the world. His altruism in insisting on the recognition of the rights of the

crippled child will evoke an enthusiastic response in the heart of every right-minded physician. His plea for a special recognition of their peculiar mental status is in the line of constructive medicine. His work with defective speech is making it possible for these children to emerge from the "shut-in" to their rightful position.

82 DR. AMES of Los Angeles: It is a very important subject dealt with by Dr. Stivers, with a fine regard for the social aspects of these cases. The problem is to keep the institutions of the country from being overcrowded by supposedly mentally deficient children, and the work of Dr. Stivers will bring to the attention of physicians and educators the importance of differentiation between the crippled, speech defective child and the mentally deficient, crippled child. It is an original and praiseworthy work on Dr. Stivers' part and he deserves our thanks for calling our attention to it. How soon after beginning speech treatment does he notice any psychological effect on the child?

DR. INGRAM (Neurologist): The paper is a demonstration of the practical importance of the value of special motor and speech training in a large group of neurologic cases. Rehabilitation and the keeping alive of muscular function after various organic nervous diseases, is a most useful thing to have patients offered them. There should be a correct diagnosis made in every case as to whether any form of aphasia exists.

MISS CHAPIN (Supervisor of Speech Training, Los Angeles Public Schools): I wish that every teacher in Los Angeles could have heard this valuable paper. Dr. Stivers is doing a wonderful work in the building up of the speech of handicapped children. We who are doing the speech corrective work in the public schools realize the importance of enlisting the help of physicians everywhere to take more interest in these cases.

DR. DON P. FLAGG (Psychologist and Neuropsychiatrist): When we remember that in 1917 there were two hundred thousand (200,000) stuttering children in the schools of the United States this is surely getting to be a big economic problem. It has been well said by a neurologist of Columbia University that every teacher and parent should be taught the fact that normal speech and normal breathing are the foundation of a normal mind. Aside from the crippled children, I believe the psychology of the speech cases shows a fear of failure.

DR. STIVERS (in closing): The keynote to the solution of the problem of crippled children and mentally deficient children will be found in better race control, better birth control, better eugenics, better obstetrics, pedi-

iatrics and child welfare. Physicians everywhere are getting a broader conception of the value of systematic training of the muscular in order to reach the mental system.

If, through my work, some crippled children are made self-supporting and learn to talk as other children do, I shall feel repaid. The entire subject of the prevention of cripples and teaching them to be useful members of society should be a State affair under the guidance of physicians and social and industrial workers.

ALEPPO BOIL: ALSO CALLED DELPHI BOIL, KANDAHAR SORE, ORIENTAL SORE.

By A. K. YOOSUF, M.D., WORCESTER, MASS.

THIS interesting and remarkable skin lesion or disease was brought to the attention of the European physicians in the latter part of the eighteenth century. It came from Aleppo, where Russell¹, Hasselquist², Holland³ and Volney⁴ found it to be endemic and gave some account of it under the name of Aleppo Boil. Attention was first directed to it by Alibert, Desant and Requin, who gave an account of it from the information supplied by the French Consul at Aleppo; but most of our knowledge is from the work of Guilhon, who, in company with Pariset, on his scientific journey to the Levant, published the results of his inquiries in regard to this disease. At first the opinion was held that the malady was confined only to Syria and Aleppo, but it was afterwards proved that this disease was prevalent in other parts of Asia Minor as well as in Central Asia, in India, at a few points in the Southern Peninsula of Europe, in the African States, and on the Mediterranean borders. Considerable areas of the disease occurred on the banks of the Muluia in Morocco, in numerous oases in the Algerian desert, in Suez and Cairo, and in Killis Aleppo-Aintab. It is unknown among the Bedouins and the population of the Kurdish Highlands. It is found in Mesopotamia in the whole plain between the Euphrates and the Tigris: from Harpoot to Diarbekir downward through Orfa, Masul and Bagdad, as far as Basra; it is prevalent in Persia, Teheran, Karan and Ispahan, and in the Indian territory near to the Afghan frontier. The people in these affected areas do not worry at all, as they consider it a harmless malady as long as it has left the nose intact and the eyes in their sockets without causing the falling of the eyelids.

Some observers have given different accounts of the type and clinical history of the boil, but there is a good deal of uniformity in its appearance and developments.

Clinical Appearance.—The skin lesion is presented without any constitutional disease or

prodromic symptoms on exposed parts, the boil beginning at first as a round, red spot with a very slight degree of nodular thickening, gradually increasing to the size of a pea or a bean. The red area begins itching. Occasionally the lesion becomes larger. After the boil has lasted some time—maybe a few months—the lesion discharges serous exudate from the central opening. This later becomes sero-purulent, forming a crust often of considerable thickness, adherent to the skin. As this crust becomes thicker the nodule in the boil undergoes a disintegration and an ulcer results. The size of the ulcer is from 2 to 5 cm. in diameter. The edges of the ulcer are irregular, the process extending down to subcutaneous tissues and causing a grayish exudate.

The usual complications may appear, as erysipelas and lymphangitis, but these are rare. When the suppurating process has gone on for several weeks or months, the bottom of the ulcer presents a healthy granulation capped by whitish crust, in due time leaving a cicatricial surface. When the boil is on the face, disfigurements of the nose, cheek, and lower eyelid may result.

This malady affects all parts of the body, but most often the face—the cheek at the angle of the mouth or the tip of the nose. It frequently appears over the hand and fore part of the arm. I had the lesion in a most unusual place, over my left eyebrow at the centre of my cheek, and on my right thigh.

The duration of the disease is from six months to a year—hence the popular name is given to it of “yearly sore or boil.” Many ladies have been disfigured just on account of this malady. In Ispahan, Persia, there is a proverb referring to the disfigurement of the countenance: “Look at only one side of an Ispahan woman’s face.”

The Etiology of the Lesions.—So far, we have not complete knowledge of the nature of this disease. I believe that the geographical area of the disease is in some way dependent on *climatic influence*, and I have observed that it begins in late summer or in autumn—September, October or November, in subtropical countries, and the first part of the cold season in the tropics.

The *nature of the ground* or the *soil* has no significance for the occurrence of the boil. Authors such as Bertherand and Dickinson have laid a good deal of stress on malarial soil, although many malarial soils and swampy places are free from this malady. It occurs to the same extent among poor and rich, among high-class society. Among the Moorish and Arab population of Algiers, many believe that it is due to the use of unstained dates, which is nothing but superstition.

The very earliest writers upon this disease in Syria—Hasselquist, Russell and Volney—

stated that the inhabitants of Aleppo believe that the water from brook *Caik* had the power to cause this malady. This belief was accepted by Guilhon and Jolt and Willemin, who thought that the area of the disease around Aleppo extended just as far as the stream of water used by the people for washing purposes, whereas the boil did not appear in neighboring villages using water from different sources.

In Algiers, too, the popular belief is that the drinking water causes these skin lesions. French medical writers, such as Poggioli, Massip, Weiss, Netter, Manoha, etc., favor this theory. In India, Frazer, Alcock, Candy, and others who have made thorough study of this disease sustain the water theory. The boil has been endemic from time immemorial. As to the composition of the water at Aleppo, there is a large amount of gypsum, according to Jolt. In Punjab, according to Frazer and Candy, there is a great amount of nitrates; around Diarbekir and Harpoot a high degree of hardness to the water, most likely due to a considerable amount of lime and magnesia. Some French medical men claim the cause is due to the amount of chloride of sodium.

On the other hand, there are others who do not put great stress upon the water theory in causing this boil. Thalozen calls attention to the fact that no sort of causal connection between the disease and the drinking water exists. Laveren says the water of Oued-Kantara in the oasis of Biseara was so rich in salts that now it is used for irrigation, while drinking water is from cisterns, yet the boil continues just the same as before.

The Parasitic Theory.—Though the disease is spread over a large part of the country, it is confined to particular spots on imaginary lines, while surrounding neighborhoods are free from it. Generally, it is found in the permanent population. Therefore, we may easily conclude that it is a local disease and diffused within those limits. Accordingly, it has no relation to the soil or climate or unhygienic conditions, so we may look for some specific cause. According to Virchow, *the boil is a parasitic malady.*

Fleming found small corpuseles with highly refractive membranes, which he supposed were the ova of a parasite. Smith found cells of various size and form and held the same opinion as Fleming. Recently, some German scientists, who were engaged in Asia Minor and some of the tropical regions, have carefully studied the nature of this disease and have discovered a form of animal parasite which causes this form of ulcer belonging to the family of *Leishman Furunculosa*. Some think it similar to that of syphilis, sleeping sickness or continued fever, which has no clinical similarity to these diseases. My friend and teacher, Dr. Altoonyan, who has resided in Aleppo many years,

has furnished some specimens which Dr. Eliot, after repeated examinations, summarizes as follows: "The disease appears confined to the epidermis and corium, extending through the latter quite to the subcutaneous tissue. The area of the disease seems composed almost entirely of small inflammatory or formative cells and epithelial elements. The line of separation between the diseased portion and the surrounding tissue is distinct, there being no graduation between healthy and diseased tissue. The hair follicles are intact, and there is no evidence of the disease in the glandular structure. No cryptogams or other microorganisms are present in sections examined."

Riehl found giant-cells present quite frequently, and, according to Leloir, the sebaceous gland and less markedly the sweat glands in the centre of the back are destroyed.

The Theory of Flies and Dogs.—The onset of this sore is similar to that of vaccination. Some years ago, a physician residing at Teheran, Persia, attempted to find the cause of this "bite." After some investigation, Dr. Gatche found that flies living on the bodies of dogs carried this vaccine germ in their trunks, heads and arms, and he immediately concluded that flies are the common media carrying the germ, not only to the human body but to animals as well. He claims that these flies never produce pain while biting, and recites the case of his servant, on whose hand he observed a fly comfortably resting. When the fly left, a small bite was observed, which later developed into an oriental sore.

Dr. Bazil believes that dogs carry these germs to men, and mentions the fact that while in Bagdad, in 1870, in a town named New Choogha, there were many cases of Aleppo boils, nearly every household being affected. On his second visit, in 1902, he was surprised at the diminished number of oriental boils—due, he believes, to the reduction in number or to the non-existence of dogs. If the doctor's statement is accepted, the population of Constantinople and those parts of Asia where the boil does not exist, should have it, because of the number of dogs. The City of Constantinople, before the Constitutional Government, was the Mecca of dogs, but Aleppo boil was not prevalent among the people.

In regard to communicability of the disease, Drs. Deparet and Bait, and Duclaux and Heydenrich instituted a search for a parasite in the boil. They have detected a micrococcus and inoculated both men and animals, inducing this disease. Earlier experimenters, such as Palak, Vandyke, Carter and Wartabet, experimenting with inoculation of themselves, have not succeeded in producing the disease. Fleming, inoculating himself, attained a positive success. Therefore, we must accept the theory that this disease is caused by parasites; second, that it

is communicable. It is an interesting fact that the incubation period is several weeks or months.

Treatment.—In the old country, the people use copper sulphate as a caustic. When the boil appears just as a bite, they squeeze and crush it. The women apply to the boil some sort of astringent dressing, changing it every day, as the serous discharge covers the dressing and runs down to the healthy part. At its early appearance, the application of ice has abated the sore.

Injection of methylin blue around the edges, or two to three centigrams of Hecke's solution, 5 per cent. carbolic acid injection or bichloride solution of the same strength, have cured the boil. The task of treatment is difficult when the boils are large and few, as after treatment an ugly scar, something like a burn, is left. Another difficulty is that, though it is called a yearly sore, it often lasts longer, mine lasting two years.

Recently salvarsan and neosalvarsan have been used with success. It is natural for the physician to think that this sore has some relation to syphilis. Blood examination has been negative in most cases. A few cases have been treated by x-ray with little success. I have treated a few cases by x-ray without a good result. I have seen cases which had existed for years in the old country disappear without treatment in this country.

Dr. Altoonyan, of Aleppo, is using tincture of iodine, but it seems to me that the chronic sore is too obstinate to yield easily to this treatment, particularly Bombay ulcer, in which the physicians tried many methods of treatment, but with little success. Rawl⁵ thought it might be desirable to attempt to make a curative vaccine, much on the principle of Wright's staphylococcus vaccine for furunculosis.

In oriental sore Leshmaniosis, by intravenous injection of salvarsan, the following results were obtained: Sixteen cured (blood positive), or nearly cured; eleven much improved; two appeared unaffected. Complete excision or cauterization is recommended, but either procedure leaves an ugly scar. Large doses of quinine and arsenic are said (Besmer-Rankin) to have a favorable influence in promoting the healing of the ulcers.

All these treatments, however, are in experimental stages. Some day, I hope the medical profession, with laboratory aid, will find a complete cure for this skin lesion, which causes the disfigurement of so many people.

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THE NATIONAL HEALTH COUNCIL.

By D. B. ARMSTRONG, M.D., NEW YORK,
Executive Officer,

AND

JAMES A. TOBEY, WASHINGTON, D.C.,
Washington Representative.

TEAM play in public health has been urged by far-sighted sanitarians for many years. As voluntary health agencies have increased in number and scope the necessity for coöperation and coördination of their activities has been accentuated. The following list shows the chronological development of the more important of these voluntary associations:

- 1844—American Medico-Psychological Association.
 1847—American Medical Association.
 1872—American Public Health Association.
 1874—American Purity Alliance.
 1876—American Association for the Study of the Feeble-minded.
 1876—American Academy of Medicine.
 1881—American Red Cross.
 1885—Conference of State and Provincial Health Authorities of North America.
 1899—American Hospital Association.
 1901—National Association for the Study of Epilepsy and the Care and Treatment of Epileptics.
 1904—National Association for the Study and Prevention of Tuberculosis.
 1904—National Child Labor Committee.
 1906—American School Hygiene Association.
 1907—Committee of One Hundred (of the American Association for the Advancement of Science) on National Health.
 1908—Committee on the Prevention of Blindness, Russell Sage Foundation.
 1909—American Association for Study and Prevention of Infant Mortality.
 1909—National Committee for Mental Hygiene.
 1909—Rockefeller Sanitary Commission.
 1910—Council on Health and Public Instruction, American Medical Association.
 1910—National Housing Association.
 1911—National Mouth Hygiene Association.
 1912—American Social Hygiene Association.
 1912—National Organization for Public Health Nursing.
 1913—American Society for the Control of Cancer.
 1913—American Posture League.
 1913—American Safety Council.
 1916—American Association of Industrial Physicians and Surgeons.
 1917—Child Health Organization of America.
 1918—American Conference of Hospital Service.
 1920—Association of Women in Public Health.
 1920—National Child Health Council.
 1920—National Health Council.

The first proposal that existing health organizations get together seems to have been made in October, 1912, by Dr. F. R. Green, secretary of the Council on Health and Public Instruction of the American Medical Association. As a consequence of this suggestion 50

organizations were invited to a conference in New York in April, 1913. Thirty-nine sent representatives. A committee was appointed to consider the entire question of public health activities and the ways in which they could be improved. The secretary of this committee, Professor Selskar M. Gunn, made a survey of the field and reported in May, 1915. He found 24 organizations having a primary health function, of which 10 could be classed as major public health organizations. Although it seemed to be generally agreed that coördination was desirable, little or nothing resulted from the report, owing to the war and other factors.

A vigorous proposal that the American Public Health Association take the lead in bringing about coördination of the national health agencies was made in December, 1918, by George E. Vincent, president of the Rockefeller Foundation. At that time he stated that there were 57 national societies interested in public health, 28 of which devoted all of their energies to some phase of it. As a result of his address the board of directors of the association called a conference; after various meetings a council of 17 national health organizations was formed, but an active program failed to materialize. These 17 agencies included: American Red Cross, American Child Hygiene Association, Child Health Organization, American Social Hygiene Association, American Pediatric Society, National Committee for Mental Hygiene, Conference of State and Provincial Health Boards, Association of Industrial Physicians and Surgeons, American Society for the Control of Cancer, National Housing Association, Life Extension Institute, National Organization for Public Health Nursing, National Safety Council, American Public Health Association, the National Tuberculosis Association, and the National Child Welfare Association, with the United States Public Health Service. While a few meetings of the Council were held, the organization eventually ceased to exist.

The spirit of coördination would not be put down, however. During the summer of 1920, one of the present writers (Armstrong) made an intensive health coördination study. This survey was conducted under the direction of Dr. Livingston Farrand, Dr. W. S. Rankin and Dr. C. J. Hatfield, and was financed by the American Red Cross. In his presidential address before the American Public Health Association in September, 1920, Dr. Rankin referred to this study and discussed coördination at some length. At this time data collected by Tobey of the American Red Cross showed that there were at least 139 national organizations which had some sort of a public health program, though only about a score of them engaged in health work as a major activity.

The report on this survey was discussed at a

conference held in Washington in October, 1920. At a second conference held in Washington in December of the same year the National Health Council was definitely created. A short time previous to this meeting there had also been formed the National Child Health Council, composed of six national agencies interested in child health. This latter special Council became one of the members of the broader general Council, the full membership of which included the following:

American Public Health Association.
American Red Cross.
American Social Hygiene Association.
Conference of State and Provincial Health Authorities of North America.
Council on Health and Public Instruction of the American Medical Association.
National Health Council, which includes the following:
American Child Hygiene Association.
Child Health Organization of America.
National Child Labor Committee.
National Committee for Mental Hygiene.
National Organization for Public Health Nursing.
National Tuberculosis Association.
United States Public Health Service (Conference Member).

Immediately, the American Society for the Control of Cancer was admitted to membership. Provision for future increase of membership was made in the constitution of the Council.

It will be seen that the 14 organizations which are direct, indirect or conference members of the National Health Council cover the field of public health through infant and child hygiene, school hygiene, nursing, medicine, mental and social hygiene, tuberculosis and general administrative activities. Each of the members appoints a representative and alternate to represent it at the quarterly meetings of the Council. The officers of the Council are: Dr. Livingston Farrand, chairman; Dr. Lee K. Frankel, vice-chairman; Dr. S. J. Crumrine, recording secretary; and Dr. W. F. Snow, treasurer. The staff includes the authors as executive officer and Washington representative, with Lawrence Marcus, executive assistant, and Helen B. Eveline, secretary and assistant.

The finances of the Council are derived through dues and from the purchase of services by member organizations, and contributions from foundations, other organizations and individuals. The budget for 1921, contributed chiefly by the American Red Cross, was \$21,000. The Council's experience during the first year seemed to justify an increase in the budget for 1922 to \$39,000.

In January, 1921, the Council began active operation and offices were established in New York and Washington. The latter is the national headquarters and occupies space in the American Red Cross building. The principal activity of the Washington office has been to

report on legislative matters. Bi-weekly statements on national health legislation have been issued since the 67th Congress was called in special session by the President on April 11, 1921. Up to the first of May, 1922, 25 of these reports have been published and nearly 200 bills relating to some phase of public health have been abstracted and progress followed. In coöperation with the United States Public Health Service, six bi-weekly bulletins on state health legislation have been issued. These bulletins contain information as to the health measures before the ten states whose Legislatures have met in 1922. Both the national and state legislative reports represent the first attempt in the history of public health to issue current, impartial information on health legislation. The circulation of the national statements is about 500 copies and they are sold at cost price, \$4 a year.

Another activity of the Washington office has been to compile information regarding the various federal bureaus which engage in health work. Five reports have been issued, as follows:

Report on the Division of Vital Statistics, U. S. Bureau of the Census.

Report on the Children's Bureau of the U. S. Department of Labor.

Report on the Women's Bureau of the U. S. Department of Labor.

Report on the Division of School Hygiene of the U. S. Bureau of Education.

General Report (with chart) of the Health Activities of the U. S. Government.

Nearly a thousand copies of these reports have been distributed to interested persons. The information contained is authentic, having been approved in each case by the chief of the bureau. In general, the reports outline the legal authority of the bureau, its history and development, organization and personnel, appropriations, current activities, and coöperation with other agencies.

In New York the National Health Council has taken the initiative in bringing about a form of practical coördination. This has been accomplished by assembling the headquarters of nine of its members in one building. In addition, 13 other agencies interested in health work occupy space here. This arrangement is in the Penn Terminal Building at 370 Seventh avenue, where the entire 15th and 16th floors are given over to the offices and equipment of these health agencies. The administration of this joint office scheme is in the hands of a common service committee. The committee offers various common facilities, such as joint library, accounting service, editorial service, letter service, purchase and sales department, shipping service and several mechanical services. By means of this pooling of interests, the cost of operation is reduced, equipment simplified, and greater efficiency is attained.

An information bureau for members of the Council has been established at the New York office. A Monthly Digest, a Library Index, and a Weekly Common Service News are issued. A current calendar of conference dates is maintained, and special temporary services are offered to members. Examples of the latter include the management of the Health Institute of the American Public Health Association during its convention last November, and the operation of a Rotary Health Week in coöperation with the International Association of Rotary Clubs and the members of the Council.

In order to coördinate effectively the actual work of the members of the Council, a number of inter-staff committees have been formed. These include a committee on publicity and education, with sub-groups on (a) publications, (b) health plays, (c) exhibits, and (d) health films; a statistical committee; a conference of business managers; a committee on health of employees; and joint committees to work out relations between the National Health Council and the National Child Health Council; and also between the Council and the American Public Health Association. Other activities include the study and development of state health councils, and a projected field service.

The National Health Council has completed over a year's existence. During that time it has been in successful operation and has justified the prediction that the formation of such a Council would mark an epoch in the history of public health in this country. It has demonstrated that a group of autonomous national organizations can work together in harmony and concord, to the end that duplication and overlapping may be reduced and progress and efficiency in public health work increased. As an auxiliary to the official agencies which are charged with the health of the people, the National Health Council fills a definite place in the field of public health. The future will enhance the opportunities for concrete service in this important sphere of human progress.

REFERENCES TO COÖRDINATION OF NATIONAL VOLUNTARY HEALTH AGENCIES.

(Arranged Chronologically)

A Plea for Efficiency and Economy in the Maintenance and Operation of Private Agencies Working for the Conservation and Promotion of Public Health. W. C. Woodward, M.D., *American Journal of Public Health*, January, 1915.

Coöperation and Coördination of Voluntary Public Health Organizations. F. R. Green, A.M., M.D., *American Journal of Public Health*, January, 1915.

The Present Condition of Public Health Organization in the United States. S. M. Gunn, May, 1915. Published by the American Medical Association.

Team-play in Public Health. G. E. Vincent, *American Journal of Public Health*, January, 1919.

Presidential Address of Lee K. Frankel, Ph.D., *American Journal of Public Health*, November, 1919.

Presidential Address of W. S. Rankin, M.D., *American Journal of Public Health*, November, 1920.

Relative Functions of Official and Non-official Health Agencies. Symposium (also editorial). American Journal of Public Health, December, 1920.

Coördination for Child Health. R. A. Bolt, M.D., Dr. P.H. Modern Medicine, December, 1920.

The National Health Council. H. S. Cumming. U. S. Public Health Reports, September 2, 1921.

The National Health Council and Public Health Nursing. Lawrence Marcus. Public Health Nurse, September, 1921.

The National Health Council in the United States. James A. Tobey. Pan-American Bulletin, November, 1921 (also in Spanish edition, April, 1922).

The National Health Council in the United States. P. F. Longley. Bulletin, League of Red Cross Societies, October-November, 1921.

The National Health Council in the United States. J. A. Tobey. Economic World, November 12, 1921.

The National Child Health Council. C. Dinwiddie. American Journal of Public Health, November, 1921.

The National Child Health Council. C. Dinwiddie. Proceedings, National Conference of Social Work, 1921.

Coördination of Public Health Activities. P. K. Brown, M. D. American Journal of Public Health, November, 1921.

National Health Council Achieves Unification through Common Service Committee. D. B. Armstrong, M.D. Nation's Health, March, 1922.

THE PRENDERGAST PREVENTORIUM.

THE following extract of a part of a letter written by Dr. John B. Hawes, 2nd, gives further information concerning the Prendergast Preventorium and will assist those interested in the same line of work:

"We plan to open our Preventorium, known as the Prendergast Preventorium for Children, on Wednesday, May 10. We start with 20 children taken from the clinics of the Boston Sanatorium, Boston Dispensary and Massachusetts General Hospital. These children must all show a positive Von Pirquet skin reaction and must have been exposed to tuberculosis. In addition to that there will be an x-ray taken in every case, while likewise all other possible sources of infection or causes of symptoms, such as diseased tonsils, adenoids, teeth, etc., we hope to eliminate beforehand.

"The old Prendergast Camp building has been entirely fixed over and repainted, and is now a charming spot. The city of Boston has loaned us for an indefinite period a voting booth which will be used as a playhouse. Miss M. Alice Gallagher, who has been connected with district nursing, etc., here in Boston for many years and who likewise had extensive experience during the war, will be in charge of the children, with Miss Mary P. Nicoll as her assistant. Dr. Randall Clifford will have immediate charge of the medical work, working under the supervision of Dr. James J. Minot and myself. Miss Isabel F. Evans and Dr. Minot have both served on the old Prendergast Committee for many years and are giving an immense amount of service, time and thought to this undertaking.

"The children will be kept at the camp as long as possible. We regret that our funds this year will not permit us to keep the camp open all the year round. We hope, however, to be able to demonstrate to the people of Boston by our results with this small number of children that there is urgent need of such an institution as this to be run all the year round on a larger scale. A careful study has been made by Miss Bernice W. Billings, executive secretary of our association, and others, of the detailed methods of treatment, etc., carried on in other preventoria, such as the ones located at Providence, R. I., Farmingdale, N. J., Toronto and elsewhere, so that we can benefit by the experience of others."

INSTRUCTIVE DISTRICT NURSING ASSOCIATION.

THE health conditions during the month of April have been excellent, with a definite reaction from the excessive sickness of the first three months of the year; 2,512 new patients were taken on; 25,595 visits made.

Grip, bronchitis, pneumonia and other respiratory diseases, which have been the chief cause of the pressure, have dropped back to normal—320 new cases of these diseases being admitted. Of measles, 121 new cases were admitted, 51 more than at this time last year. The increase in new cases of diseases of the heart, which was recently noted, continues this month. There was also an increase in new cases of cancer.

The bedside nursing care of very sick patients was still heavier than normal, because of the patients continuing under care from the preceding month.

One hundred and seven children were treated in the seven dental clinics held during the month in the Hyde Park Health Center. This clinic, in charge of a graduate of the Harvard Dental School is held two full days each week.

Practically nothing but preventive dentistry is done. Last year 453 patients were treated, 28 of them adults. This year an attempt is being made to limit the age of patients to 9 years. Special emphasis is laid on the pre-school period. Many of the patients are referred directly from the Child Health Clinic, which is also one of the Center activities. The dental clinic is open to any child in Hyde Park whose family income, per capita, does not exceed a stated sum. A nominal charge, sufficient to cover the cost of the material, is made.

The clinic was established because of the great need, 95 per cent. of the children having been found with defective teeth in the demonstration of dental prophylaxis which was made by the Association in the first and second grades of the Hyde Park schools in 1918.

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AN ACCEPTABLE FORM OF STATE MEDICINE.

THE term "state medicine" has, for several years, been the theme about which discussion has brought forward expressions of bitter resentment. The mental reactions have in some instances seemed to indicate a rather hazy comprehension of the import and application of the words. Many persons suspect that health authorities are seeking to usurp the prerogative of the practitioner and drive him away from his legitimate field; and even though the importance of work done by health officials is recognized, such persons would theoretically restrict state departments to the application of the principles of preventive medicine and the dissemination of information. In other words, the state should not, according to some critics, deal with individual patients or promulgate policies which might interfere with curative medicine. But even the most fearful would welcome that type of coöperation which provides, without cost to the practitioner, reliable preparations for the cure of the diseases found among his patients.

There was a time when even cowpox virus was an expense to the doctor, and some practitioners of limited means or with economic tendencies carefully removed the crust from the human vaccination sore and macerated it for

further use. This humanized virus was often kept between two pieces of glass, carried in a paper envelope in the doctor's pocket and drawn upon from time to time with increasing septic potency. Fortunately, antivaccinationists were not so critical in those days or there would have been a more extended parade of objectors before legislative committees.

Many changes have followed one another since the State Board of Health placed cowpox virus in the hands of doctors without expense. Such habits have given way to better methods, due both to better knowledge and Health Department coöperation.

Recent circulars sent broadcast by our State Department of Public Health give the details of the care of vaccine virus, the proper method of its use and some general observations relating to vaccination. In addition to free distribution of vaccine virus, physicians are given, free of charge, antipneumococcic serum, bacterial vaccines made from the three typhoid diseases, diphtheria antitoxin, the toxin-antitoxin mixture, the outfit for the Schick Test, and the antimeningococcic serum. The circulars relating to all these products present clear-cut statements covering the directions for preventive and curative treatments, with full explanations relating to anaphylaxis, thereby saving the doctor's time in reading upon these subjects.

The fact that the Department of Public Health is licensed under the Government, after inspection, guarantees the quality of the products.

Occasionally there has been some disappointment expressed because the production of antitetanic serum remains in the hands of private corporations, but the reason is obvious, because it would be unwise to attempt the manufacture of this product in close association with the others referred to. The state has already incurred great expense incident to the manufacture of the seven varieties referred to, and cannot enter upon the last mentioned without the creation of a separate plant. If, however, the state sees fit to provide the necessary funds, this extension of the Department of Health functions would be welcomed.

No one makes objection to the distribution of these biologic products, because it is apparent that this form of state medicine or paternalism in no way invades the field of the clinician. It is evident that this sort of state medicine, although it has displaced, to some degree, commercial products, is beneficial both to the people and the practitioner, hence it is endorsed. Thus far this custom has been justified by the results obtained. The conception and growth of this custom has reflected a laudable desire to enlarge public service, and however much other forms of state medicine, as

interpreted by some, may have elements of danger to private practice, may we not reason from the past and find consolation in the evidence of honest coöperation and absence of ambition for bureaucratic power?

There has been a marked change of opinion in the past decade relating to so-called state medicine, for wherever it has been shown that any measure has promise of benefit to the people and the building up of the efficiency of medicine, doctors have gladly endorsed such plans. Advocates of extreme policies suggestive of state control of medicine have found that the doubtful customs of other nations are carefully studied and if such are unable to conform to the ideals of our country they are seldom adopted. The temper of our people seems to be distinctly opposed to disrupting the intimate relation of doctor and patient or of degrading the practice of medicine to the panel system or state regulations of fees. But when it can be shown that humanity and human progress require useful changes in our laws and customs the medical profession will be ready to endorse them.

The extension of state functions should be confined to plans for specific measures dealing with a particular problem rather than those broad and almost unlimited fields in which there are possibilities of hitherto unknown complications. Every argument for extension of state policies should be carefully studied and made public before attempting adoption of them. We are fortunate in having many critics of proposed legislation.

THE ORGANISM OF TYPHUS FEVER.

It has recently been stated in newspapers that Dr. N. Kritch, working in the Biological Institute in Moscow, has announced her discovery of the germ of typhus and the fact is said to have been confirmed by Dr. Walter P. Davenport of Chicago. According to the account which we have seen, a coccus was recovered from the brain in 11 out of 12 cases after death and the cultures were made in human splenic tissue. Inoculation of guinea pigs with the organism is reported to have produced "typhus symptoms." The discovery was announced at a meeting of physicians in Moscow.

From the limited information at hand it is impossible justly to form an opinion as to the significance of the findings of Dr. Kritch, but, before the discovery can receive general acceptance by physicians, the facts must be known in detail and confirmation must be obtained by other observers.

Meanwhile, an attitude of open-minded scepticism should be maintained. This attitude is

more than justified because, during past years, many different organisms have been thought to be the cause of typhus, but complete confirmation of these supposed discoveries has not followed.

Wolbach and his associates, moreover, have recently obtained important data in Poland regarding the intracellular form of *Rickettsia*. Their work confirms the findings of other observers and amplifies them in such a way that the evidence pointing to the intracellular *Rickettsia* as the probable cause of typhus is now very strong.

A LEGISLATIVE COMMITTEE UNDER THE AUSPICES OF THE A. M. A.

THE JOURNAL has previously suggested the advisability of the formation of a committee on legislation that would represent the profession of the United States. Since the A. M. A. is the largest medical society in the world and should represent the best knowledge relating to public health matters, it is logical and right that the government should have advice on those matters which are more clearly understood by physicians.

Although the *Journal* of the A. M. A. does deal with problems of interest to physicians through its editorial department, such expressions of opinion are the reactions of individuals, hence unanimity of opinion put forward by a group of representative men ought to carry more weight than suggestions by an editorial writer. It is true that there have been conferences on legislative matters by members of the A. M. A., but these meetings have been more or less unofficial, and, although of advantage in securing and disseminating information, have not been regarded as carrying the endorsement of the profession as a whole.

There may be some objection to the formation of an official legislative body on the ground that it would intensify the suspicion that the medical profession intends to establish a lobby and try to control legislation. One can appreciate the tendency to emphasize the time-worn assertions relating to the so-called medical trust whenever the leaders in the profession show any activity in public affairs, but these contentions are not true and illustrate the resources of the opposition. Although these catch phrases evidently have some meaning and influence with those who are not in sympathy with progressive medicine on the one hand or conservative attitudes toward innovations on the other, they could not be used more effectively than they are now.

It is possible that physicians have been too sensitive or conservative, or even too fearful,

in the presence of opposition, to secure effective recognition. The world respects courage and action far more than complacency. Diplomacy has its place, to be sure, but when vital issues are at stake and we are sure of our ground, enthusiastic and persistent battling for the right may carry farther than the use of simple statements couched in the conservative language in common use by scientists. We must understand that the men who make our laws are trained in the public forum. It is difficult to secure their attention unless pleas are presented in forceful fashion and backed by influential groups.

It is hoped that the House of Delegates of the A. M. A. may feel that some organization should be perfected to which the profession may from time to time present ideas relating to legislation, with the expectation that suggestions will receive careful consideration and definite policies will be adopted.

The opponents of medical progress are aggressive, constantly active, and will try to break down laws which were made for the protection of the people, or secure the enactment of others which will give incompetent practitioners authority to prey upon the credulous.

Dr. Charles E. Mongan, representing the Massachusetts Medical Society in the House of Delegates of the American Medical Association, is considering the advisability of presenting to the House of Delegates resolutions, which, if adopted, will provide for a committee on legislation. Each state will be represented in this committee, according to the plan under consideration.

THE FEDERAL MATERNITY AND INFANT WELFARE ACT.

The first meeting of the Board having the administration of the law under this act was held April 18, 1922. Miss Grace Abbott, chief of the Children's Bureau, was elected chairman. The other members of the Board are Surgeon-General H. S. Cumming and John J. Tigert, Commissioner of Education.

The provisions of the law have been accepted by forty-one states, either by the governors or legislative action. Twenty-three states have secured from the Board approval of plans for administering the law and can go forward with the work. These states are: Alabama, Arizona, Arkansas, Connecticut, Delaware, Florida, Georgia, Idaho, Indiana, Kansas, Kentucky, Mississippi, Missouri, Montana, Nebraska, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Virginia and Wyoming.

Interest centers in the validity of the law now that the Attorney-General of Massachu-

setts has declared the law unconstitutional. Since the Federal Government has to secure much money through taxation the question will arise as to the legality of taxes levied on non-contributing states. The next logical step will be to ascertain the opinion of the Supreme Court of the United States.

NEWS ITEMS.

THE annual meeting of the Massachusetts Medical Society for 1922 will be held at Boston June 13 and 14. A detailed program will appear in THE JOURNAL of June 8.

DR. ALLEN B. KANAVEL of Chicago read a paper on "The Diagnosis of Surgical Abdominal Lesions" before the Springfield Academy of Medicine, May 9.

DEATH RATE IN BOSTON.—During the week ending May 6, 1922, the number of deaths reported was 236, against 209 last year, with a rate of 16.11. There were 43 deaths under one year of age, against 31 last year. The number of cases of principal reportable diseases were: Diphtheria, 48; scarlet fever, 50; measles, 190; whooping cough, 8; typhoid fever, 1; tuberculosis, 36. Included in the above were the following cases of non-residents: Diphtheria, 1; scarlet fever, 4; whooping cough, 1; tuberculosis, 4. Total deaths from these diseases were: Diphtheria, 1; scarlet fever, 4; tuberculosis, 15. Included in the above were the following cases of non-residents: Scarlet fever, 1.

MEDICAL ADVISORY BOARD.—The first meeting of the Medical Advisory Board, appointed by His Honor, James M. Curley, met in the office of the Health Commissioner on May 10.

Those present at the meeting were Dr. F. X. Mahoney, Health Commissioner; Dr. John A. Ceconi, Epidemiologist, and Stephen L. Maloney, Department Secretary; Dr. Timothy Leary, Dr. F. P. Denney and Dr. Harry Linenthal, representing the Norfolk District Medical Society; Dr. Robert B. Osgood, Dr. Martin J. English and Dr. George C. Shattuck, representing the Suffolk District Medical Society; Dr. William H. Watters and Dr. Wesley T. Lee, representing the Massachusetts Homeopathic Hospital. Dr. Henry M. Pollack of the Massachusetts Homeopathic Hospital was out of town and unable to attend the meeting.

The Board was organized with the choice of Dr. F. X. Mahoney as chairman and Stephen L. Maloney as secretary.

The meeting of the Board was opened by Chairman Mahoney with words of welcome. He stated that the Advisory Board was offi-

cially appointed by His Honor, James M. Curley, to advise and coöperate with the Health Commissioner on request and in cases of emergency in medical matters, particularly in preventive medicine.

Dr. Mahoney prefaced the discussion by a request that the Medical Board bring to their respective societies the desire that all physicians coöperate with the Health Department in the prevention of disease. He stated that he had confidence in the physicians in the city and their ability to intelligently diagnose and combat any unusual outbreak of communicable disease.

Dr. John A. Ceconi, Epidemiologist in the Health Department, explained in detail the methods used in the Schick and Toxin Antitoxin method for the control of diphtheria.

The Board then took up the advisability of endorsing the inauguration by the Health Department of this Schick and Toxin Antitoxin method for the control of diphtheria, and, after a lengthy discussion, went on record as unanimously favoring the promotion of the tests in the city of Boston. It was agreed that the physicians in the city should be informed in detail, by means of descriptive and illustrative circulars and instructions, as to the administration, reaction and efficacy of the test, especially in view of the successful results that have been shown in several of the large cities where the work is being carried on, particularly in New York City, where Dr. Zingher, alone, has already tested more than 160,000 children.

It was decided that clinics for demonstration of the application of this test and treatment will be conducted under the auspices of the Health Department, at which physicians will be allowed to participate. It was the sense of opinion of the members of the Board that physicians in charge of baby clinics and at hospitals should take especial interest in this work, and that parents of children of pre-school age should be encouraged and urged by pediatricians to have the babies tested.

SUFFOLK DISTRICT MEDICAL SOCIETY.—The officers elected at the annual meeting are as follows: President: J. S. Stone, M.D.; vice-president: C. M. Smith, M.D.; secretary: R. H. Miller, M.D.; treasurer: D. J. Bristol, Jr., M.D.; commissioner of trials: Channing Frothingham, Jr., M.D.; councillor for nominating committee: W. C. Howe, M.D.; alternate: W. H. Robey, Jr., M.D.; librarian: E. C. Streeter, M.D.; committee on supervision: F. W. Stuart, M.D., L. H. Spooner, M.D.; committee on social meetings: H. F. Day, M.D., A. A. Horner, M.D., A. W. Allen, M.D., L. J. Cummins, M.D.; censors: G. B. Fenwick, M.D., T. J. O'Brien, M.D., R. H. Vose, M.D., G. A. Leland, Jr.,

M.D.; councillors: J. L. Ames, M.D., S. H. Ayer, M.D., J. W. Bartol, M.D., V. Y. Bowditch, M.D., R. Bonney, M.D., J. T. Bottomley, M.D., E. G. Brackett, M.D., J. E. Briggs, M.D., M. E. Champion, M.D., L. J. Cummins, M.D., L. Davis, M.D., W. H. Devine, M.D., C. Frothingham, Jr., M.D., J. E. Goldthwait, M.D., G. S. Hill, M.D., W. C. Howe, M.D., J. C. Hubbard, M.D., H. Hutchins, M.D., H. Jackson, M.D., D. F. Jones, M.D., E. A. Locke, M.D., F. T. Lord, M.D., F. B. Lund, M.D., D. Macomber, M.D., G. B. Magrath, M.D., B. H. Metcalf, M.D., R. H. Miller, M.D., J. J. Minot, M.D., E. H. Place, M.D., B. W. Pond, M.D., A. Quackenboss, M.D., E. Reynolds, M.D., W. H. Robey, Jr., M.D., S. Rushmore, M.D., D. D. Scannell, M.D., C. L. Seudder, M.D., C. M. Smith, M.D., J. S. Stone, M.D., E. W. Taylor, M.D., L. P. Tingley, M.D., F. H. Williams, M.D.

DEFECTS IN VERMONT SCHOOL CHILDREN.

Of 4765 pupils examined in one health district in Vermont 3235 were found to have physical defects detrimental to health, growth and mental development. Most of these defects were considered to be correctable. In Health District No. 2 13 per cent. had diseased tonsils and adenoids, 18 per cent. defective eyesight, 7.7 per cent. defective hearing, 51 per cent. defective teeth. These percentages were not very different throughout the state. There are two health districts in the state. In many instances whenever it was found that corrective measures could not be paid for, the state furnished necessary operatives.

The United States Public Health Service has stated that Vermont has 100 per cent. of its rural population under whole time health officers. The general average throughout this country is 8.26 per cent, according to the Bulletin of the Vermont State Board of Health. The nearest approach to the Vermont figure is 45 per cent. for Ohio.

CHAULMOOGRA OIL AS LEPROSY CURE DISCUSSED IN NEW BULLETIN.

ALTHOUGH chaulmoogra oil has been in use for hundreds of years by the natives of India in the treatment of leprosy, it is only in recent times that general interest has been taken in it. Now scientists and medical men of various countries are studying the chaulmoogra tree with special consideration of the curative properties of the oil and its constituents, which already have been thoroughly examined chemically.

The United States Department of Agriculture has had plant explorers in the Orient

studying the true chaulmoogra and collecting the native lore regarding the value and uses of the oil from different related species. In Department Bulletin 1057, "The Chaulmoogra Tree and Some Related Species," by Joseph F. Rock, agricultural explorer, is collected all the recent information regarding these trees and the oils used in the treatment of leprosy and some other skin diseases.

According to the bulletin, some investigators accept it as established "that the fatty acids of the chaulmoogric series are specific in leprosy." The modern method is to use hypodermic injections of the esters prepared from the peculiar fatty acids of the oil which have been found to possess curative properties.

The bulletin is of a technical nature and of interest chiefly to investigators. Those interested may obtain it from the Department of Agriculture, Washington, D. C.

A MENACE TO SCIENCE AND EDUCATIONAL INSTITUTIONS.

THE Underwood Tariff Bill, still in power, enacted October 3, 1913, provides a rate of 25 per cent. *ad valorem* for scientific instruments, microscopes, etc., and grants to educational institutions the privilege of importing these items free of duty. (This privilege has likewise prevailed in tariff acts existing prior to the one referred to.)

The "Fordney Tariff Bill" (H. R. 7456), introduced in the House of Representatives on June 29, 1921, provides an increase to the following rates: (a) Microscopes, photo apparatus, projection apparatus, field glasses, optical and scientific instruments, 35 per cent. *ad valorem*; (b) abolishes the privilege to educational institutions of importing scientific instruments free of duty.

The latest form of Tariff Bill H. R. 7456, reported by Mr. McCumber on April 11, 1922 (now before the Senate committee on finance), reads as follows: Azimuth mirrors, sextants and octants; photographic and projection lenses, opera and field glasses, telescopes, microscopes and other optical instruments and frames and mountings for the same, 55 per cent. *ad valorem* (120 per cent. increase over the present rate). Paragraph 360, page 77, reads as follows: Philosophical scientific, and laboratory instruments, apparatus, utensils, appliances (including drawing and mathematical instruments), and parts thereof, composed wholly or in chief value of metal, surveying instruments and parts thereof, 55 per cent. *ad valorem* (120 per cent. increase over the present rate). Paragraph 1531, page 216, does not provide for duty free importation of sci-

tific instruments for educational institutions, therefore automatically cancels this privilege.

The strong opposition prevailing among the scientists of this country is forcefully voiced through the resolution passed and adopted by the American Association for the Advancement of Science (having over 12,000 members) at the second Toronto meeting, December 27-31, 1921.

Telegraph, write or make personal presentation of your objection to the Senator and Congressman of your district, and, furthermore, communicate with each member of the United States Senate Committee on Finance, Senate Office Building, Washington, D. C.

THE BILL FOR THE LIMITED PRACTICE OF MEDICINE BY MEDICAL STUDENTS.

THIS bill, innocent in intent, and restricting the medical student to work under direction of instructors, has had a stormy experience in the Legislature. The Senate was equally divided when this bill came up for action and the President had to cast the deciding vote in its favor. Some members of the Legislature evidently failed to understand the purport of the bill, which was to protect students engaged in the study of medicine, at the same time defining their powers. The patients under treatment, who were assigned to students, would not be subject to danger, for all that a student will be able to do will be to study the symptoms and behavior of the diseases under investigation and only apply treatment as directed. Without this law students engaged in the study of cases were liable to prosecution, for it has been the custom to encourage the examination of patients for the purpose of making diagnosis and rendering simple treatment. Students engaged in observing obstetric cases were especially in danger. If the bill is finally enacted the conditions will be far more satisfactory.

THE ANNUAL MEETING OF THE SOCIETY.

THIS year the Massachusetts Medical Society has arranged an unusual program for its meetings on June 13 and 14. In addition to the usual Hospital Clinics and Section Meetings a very interesting and practical program has been arranged for June 14 at the Harvard Medical School. The Departments of Physiology, Pharmacology, Chemistry and Hygiene have gladly consented to give demonstrations of the work being done in their departments, which will be of the greatest value to the practitioner. It is a real opportunity for the members of the society to return to the school and

learn the great practical value of the work which is being carried on there. It is to be hoped that as many as possible will take advantage of these demonstrations.

THE WORK OF THE AMERICAN RELIEF ADMINISTRATION.

TEN of the leading medical colleges in Russia have received a large shipment of medical journals which were furnished to the Medical Division of the American Relief Administration by the Rockefeller Institute, says a cablegram from Moscow to the American Relief Administration headquarters here today.

"Russian doctors," says the message, "have been starved for medical literature and feel that they have been cut off from all medical progress in the last five years; hence these publications satisfy the craving for recent scientific knowledge."

Further shipments are reaching Russia, it was announced, and will be distributed as rapidly as it is possible to do so. During March 83 hospitals and public institutions in Petrograd were supplied by the American Relief Administration with medicines and other necessities.

SCHEDULE OF NEXT SEASON'S MEDICAL MEETINGS.

THE JOURNAL will publish the schedule of medical meetings in every issue for the next season if the information is furnished. Secretaries of societies and clubs should send in those dates which are fixed so that the facts may be available. Whenever the subjects to be considered can be known in advance this information will be added. The suggestion for this plan has been made by a prominent practitioner. One reason for the publication of dates of meetings is to enable those who may be planning for some special meeting to select a time which will not conflict with regular meetings.

Miscellany.

RESEARCH FELLOWSHIP OF ONE THOUSAND DOLLARS FOR THE STUDY OF ORTHOPEDICS IN RELATION TO HYGIENE AND PHYSICAL EDUCATION, GRADUATE DEPARTMENT, WELLESLEY COLLEGE.

GENERAL requirements to be met by the successful applicant: Good health; the Bachelor's degree from a college or university of good standing; sound preparation in chemistry, physics and biology; special preparation in

anatomy, kinesiology and physiology; familiarity with the elements of orthopedic theory and practice; and an insight into some one or more of the problems of orthopedics as related to hygiene and physical education.

The work on the problem chosen in consultation with the department must be done in residence at Wellesley College except for study and observation of clinical practice. It will, in general, begin in September following the acceptance of the applicant and will continue through one calendar year. It will involve kinesiology, applied physiology and the study of clinical material. For the latter, opportunity will be provided to study the work of orthopedic surgeons in Boston and other Eastern cities. The results of the investigation are to be embodied in a thesis to be submitted to the department and published.

Those wishing to apply for this fellowship should send their evidence of preparation and qualifications to the Director, Graduate Department of Hygiene and Physical Education, Wellesley College, Wellesley, Mass. The decision reached by the department will be based upon the applicant's record, upon personal correspondence, and, when possible, upon personal interviews.—*Wellesley College Bulletin*, March, 1922.

VIVISECTION AND VALUES.

As reported by a Boston paper, Mr. Rowley, president of the Massachusetts Society for Prevention of Cruelty to Animals, said yesterday in a public attack on vivisection that he would forego any of the advances of modern medicine rather than benefit by experimentation on dumb animals, and that the basis of his objections is moral.

In taking this position Mr. Rowley, like most other antivivisectionists, is guilty of the fallacy of inverted values, which had its origin in ages that were indifferent to man's earthly destiny. The earthly destiny of man is earthly perfection. The higher characters of the race put themselves through immense toil and often through great suffering and deprivation to advance mankind toward his goal. These persons are invariably the most moral people of their generation. They are so because they work effectively for the highest moral end—mankind's earthly perfection.

The antivivisectionists would thwart this end, to save some animals from some suffering for man's highest welfare. The best and noblest men may suffer for that exalted aim, but lower animals must not. And saving a fraction of the animals from this suffering, a spokesman for morality calls moral!

It is, on the contrary, altogether immoral. Nothing compares with the immorality of ob-

structing the development of the highest form of life on earth into something still higher. To keep mankind low, degraded, backward, heavily handicapped and retarded by disease, is a perversion of values which passes over the border of immorality into moral crime.

MORRISON I. SWIFT.

Boston, April 26, 1922.

—*Springfield Republican*, April 29, 1922.

MEDICINE AND DISEASE IN RUSSIA.

THE following is from an abstract in the *Journal of Laboratory and Clinical Medicine* of an article by Dr. Boris Sokolov, Professor of Protozoology at the University of Petrograd, and is quoted as an indication of the grave menace conditions in Russia are to the health of the rest of the world.

"The Soviet medical organization is based upon rigid centralization, under the control of the Department of Public Sanitation and Hygiene, which directs the entire medical work of the country. The development of a bureaucracy has resulted in an extreme laxity in administration. Directors of the hospitals and clinics are members of the Communist party and usually are political appointees of little or no ability, but having absolute, dictatorial power.

"Scientific work is practically at a standstill. Only a very few medical journals have survived and the laboratories have neither money nor equipment for experimental work. What little research is being carried on has been chiefly in the study of typhus fever.

"The Soviet government appears to have at last assumed a tolerant attitude towards the medical profession. Members of this profession are the only 'intellectuals' whose work has not been entirely interrupted by the Communist Revolution. The medical men have attempted to maintain throughout a neutral attitude in political matters. As a body they are, however, anti-Communist. As a result of this neutrality many have been shot by the Reds, and many others by the Whites. Many physicians are still in prison. The doctors have felt it their duty to maintain, in so far as possible, the health of the masses, the majority of whom cannot be held responsible for the Revolution or its consequences. Twenty-five per cent. of the profession have left Soviet Russia.

"Physicians have suffered more from epidemic disease than from persecution or civil war. Between November, 1917, and August, 1920, 47 per cent. of the medical men in Petrograd died."—*Weekly Bulletin*, *New York Department of Health*.

CRITICISM OF THE AMERICAN PUBLIC HEALTH ASSOCIATION.

At the annual meeting held in November, 1921, Dr. Louis I. Harris presented resolutions charging that the leadership and direction of the Association were more in the hands of corporate agencies and lay groups than in state and municipal health officials and that the Association had failed to meet its responsibilities.

The matter came up for discussion at the meetings of the Executive Board and Governing Council held in Washington March 15 and 16, 1922. At this meeting the following resolution, proposed by Dr. Lee K. Frankel, was adopted:

"Resolved, That the President of the Association be authorized to appoint a representative committee of fifteen from the membership of the Association to consider the advisability of a fundamental reorganization of the Association and a clarification of its policy."

This Association is composed of eminent workers in Public Health bodies, and several members are from this section of the country, hence the future policies to be adopted will be of great interest to the profession in this state.

NEW HAMPSHIRE HEALTH OFFICERS.

THE local boards of health throughout New Hampshire are obliged to send their health officers or a representative to a school of instruction arranged for by the State Board of Health.

Two hundred and fifty health officers recently attended a conference at Concord, N. H. During this session many papers were read and discussions on health problems were conducted. A spirit of cooperation has been developed throughout the state.

EARLY USE OF ANTITOXIN.

Diphtheria is curable. If antitoxin in sufficiently large doses is given on the first day of the disease, practically every child will recover.

Now for the figures. Out of a total of 8372 cases, 624 cases were given antitoxin on the first day of the attack, with only two deaths resulting. In 2181 cases antitoxin was given on the second day of the attack, with only 33 deaths, or 1.51 per cent. In 2926 cases antitoxin was given on the third day of the attack, with 99 deaths, or 3.38 per cent of a mortality rate. In 1578 cases in which antitoxin was given on the fourth day of the attack, there were 176 deaths, or 11.15 per cent. of a death rate. Out of 1063 cases in which antitoxin was administered the fifth day or later, there were 234 deaths, or 22.01 per cent.

Now note that out of a total of 544 deaths, all but two of them occurred in cases where antitoxin was administered later than the first day and all but 35 of them occurred when antitoxin had been administered on the third day or later.—*Bulletin Chicago School of Sanitary Instruction.*

RESEARCHES ON THE RELATION BETWEEN SUSCEPTIBILITY AND FATIGUE.

THE American Medical Association has granted to Dr. Reynold A. Spaeth, of the Department of Physiology, School of Hygiene and Public Health, Johns Hopkins University, the sum of \$200 to further his researches on the relation between susceptibility and fatigue.—*Science*, May 5.

DR. LONGCOPE APPOINTED PROFESSOR OF MEDICINE AT JOHNS HOPKINS.

DR. WARFIELD THEOBALD LONGCOPE, Bard professor of medicine at Columbia University and physician-in-chief at the Presbyterian Hospital, New York City, has been appointed professor of medicine at the Johns Hopkins University Medical Department and physician-in-chief at the Johns Hopkins Hospital, beginning on July 1, when the one-year term of Dr. H. Canby Robinson will expire. Dr. Robinson went to the hospital with the understanding that at the end of one year he was to return to his post as professor of medicine and dean of the Vanderbilt University Medical Department.—*Science*, May 5.

CANCER PREVENTION MEETING IN SPENCER.

DR. EDWARD H. TROWBRIDGE of Worcester addressed an audience of about four hundred citizens of Spencer on a recent Sunday afternoon. His subject was "Cancer: How to Detect It, How to Avoid It, and How to Treat It."

The committee in charge of this meeting consisted of Dr. George W. Ellison, Dr. J. R. Fowler, Arthur Monroe, Esq., Mr. Waldo Bemis and Mr. Newton Prouty. The musical program was arranged by Miss Nina Fletcher, Miss Mary Gilbert and Mr. Robert E. Skaife.

DANGERS INCIDENT TO THE INTRAVENOUS USE OF QUININE IN THE TREATMENT OF MALARIA.

KENNETH F. MAXCY, Assistant Surgeon U. S. P. H. S., has written on this subject, basing his conclusions on the results set forth in recent war literature and on cases under his observation. He states that "Quinine injected intravenously into man may manifest quite definite effects upon the circulatory system, the nervous system, and upon the skin and subcutaneous tissue when these are involved at the site of the injection." His conclusions are as follows:

1. The dangers in the intravenous injection of quinine in the treatment of malaria are: Depression of the circulation; disagreeable and alarming nervous phenomena; and local necrosis and sloughing at the point of injection.

2. No evidence is found to indicate that this route possesses special advantages over ordinary mouth administration of the drug in curing the acute attack or in ridding the blood-stream of sexual forms (crescents), except with regard to the speed with which therapeutic control may be initiated.

3. The method should be reserved for those cases with urgent clinical indications or in which mouth administration of the drug is impracticable for any reason.

4. The untoward effects which may result from intravenous administration of quinine may be largely avoided by rigorously observing certain precautions similar to those found necessary in the injection of such drugs as salvarsan.

A RESEARCH FELLOWSHIP IN BACTERIOLOGY.

IT is announced by Dr. Victor C. Vaughan of the National Research Council, in Washington, that the Society of American Bacteriologists at its recent meeting in Philadelphia, appropriated a fund for the support of a Research Fellowship in pure bacteriology. While excellent work is being carried on in many places, nearly all the problems under investigation have as their aim a practical application and there are, therefore, many gaps in our knowledge of fundamental principles. The Society, believing it to be the duty of bacteriologists to fill these *lacunae*, requires that the line of work to be carried on under its fund must concern a purely scientific and fundamental phase of bacteriology, although a certain latitude of choice will be permitted, conditioned by the previous training and the desires of the research fellow himself.

Applicants for the fellowship must have the degree of B. S., or its equivalent. The success-

ful candidate, through arrangements now being made, will receive academic credit for the work done from a university of recognized standing. One hundred dollars a month will be available for the living expenses of the fellow. Approximately half his time will be devoted to details connected with the Society's collection of bacteria, deposited at the Army Medical Museum.

The selection of the research fellow will be in charge of a committee consisting of: Dr. Victor C. Vaughan, Chairman Medical Section, National Research Council, Chairman; Captain C. S. Butler, Medical Corps, U. S. Navy, Commandant, Naval Medical School; Dr. George W. McCoy, Director Hygienic Laboratory, U. S. Public Health Service; Dr. John R. Mohler, Chief, Bureau of Animal Industry; Mr. L. A. Rogers (President of the Society of American Bacteriologists), in charge of Research Laboratory, Dairy Division, Bureau of Animal Industry; Colonel Joseph F. Siler, Medical Corps, U. S. Army, Division of Sanitation, Office of the Surgeon-General of the Army; Dr. Erwin F. Smith, Pathologist in Charge, Laboratory of Plant Pathology, Bureau of Plant Pathology.

This committee will have general supervision of the work, approve the problem selected and pass upon the thesis which the fellow will submit as the report of his research.

Applications for and communications concerning the Research Fellowship should be addressed to the Chairman of the Committee, Dr. Victor C. Vaughan, National Research Council, Washington, D. C.

A. PARKER HITCHENS, M. C.,

Secretary of the Committee.

Army Medical School,
Washington, D. C.

THE CULTURE COLLECTION OF THE SOCIETY OF AMERICAN BACTERIOLOGISTS.

THE Society of American Bacteriologists has taken over the collection of cultures which for the past ten years has been maintained at the American Museum of Natural History by Professor C.-E. A. Winslow, and has deposited it at the Army Medical Museum, where facilities have been arranged for its housing and maintenance. The following committee will be in charge:

Major G. R. Callender, Curator of the Army Medical Museum; Dr. George W. McCoy, Director Hygienic Laboratory, U. S. Public Health Service; Major H. J. Nichols, Army Medical School; the President of the Society; the Secretary of the Society; Dr. J. M. Sherman, Dairy Division, Bureau of Animal Industry, Chairman.

These and other members of the Society in and near Washington will do volunteer work

and the research fellow will do part-time work in maintaining the collection. No charge will be made for cultures. In making requests, the classification of the Society should be followed as far as possible.

Mail should be addressed to the Department of Bacteriology, Army Medical Museum, 7th and B Streets, S. W., Washington, D. C.

J. M. SHERMAN,

Chairman of the Committee.

AMERICAN RELIEF ADMINISTRATION IN RUSSIA.

SARATOV, Soviet Russia, March (by mail).—There were no anesthetics in the hospitals of this city, this winter, until the American Relief Administration arrived and began the distribution of medicine and hospital supplies.

A small supply of ether and chloroform was available, but the hospitals did not have the money to buy. The order was issued that each person coming to the hospital to have an operation performed must bring his own anesthetic with him. For the majority of patients, this was prohibitive. The price was equal to the amount earned in two months' labor. It became more and more necessary to perform minor operations without administering an anesthetic, and at least one leg amputation was made in this manner.

The American Relief Administration has distributed in this place alone supplies to thirty children's homes, ten hospitals, and four ambulatories. These include drugs of all kinds, as well as blankets, sheets, towels, pajamas, sweaters and stockings. The American Relief workers will not give supplies to hospitals or homes that are not willing to clean up and keep in decent condition.

Work in the large maternity wards is one of the most valuable and appreciated forms of medical relief here. The lives of many mothers and new-born infants have been saved since the nurses have been supplied with proper materials for their care.

The surgeons and nurses in the hospitals here have taken a new courage since the American Relief Administration arrived with its stock of medical supplies and surgical dressings.

Saratov is the seat of a large university, founded in 1909, and the Department of Medicine is one of its strongest faculties. The medical students assist in the laboratories and clinics of the hospitals, and one of the most famous medical professors in Russia is the chief surgeon at Sovietski Hospital No. 1. This hospital is now well managed and well supplied throughout, and is performing great service in the relief of typhus and other famine diseases. —*American Relief Administration.*

THE MEDICAL RECORD.

APRIL 22nd marked the passing of the last of the old independent medical weeklies—*The Medical Record*. The final issue as a separate publication appeared on that date and announcement was made that *The Medical Record* had been sold to and combined with the *New York Medical Journal*, which appears semi-monthly.

Throughout the fifty-six years of its service to the profession, *The Medical Record* has had the same publishers and but two editors. Dr. George F. Shrady guided its course for the first thirty-eight years and was succeeded by his assistant, Dr. Thomas L. Stedman, who has long been dean of American medical editors, and widely esteemed. The famous old firm of William Wood & Company will now devote its energies entirely to the publication of medical books, in which service it has been engaged for 118 years.

It is interesting to recall that many of the most important discoveries and developments in the progress of medicine were first announced to the American profession by the *Medical Record*. These included Lister's method of antiseptics; Koch's discovery of the tubercle bacillus and that of tuberculin; the employment of cocaine in eye surgery; the Roentgen rays; the discovery of the antitoxin of tetanus and that of diphtheria; Madame Curie's discovery of radium, and many others.

RABIES IN GEORGIA.

In the *Journal of the Medical Association of Georgia*, the statement is made that Georgia is the focus for rabies in the entire United States, for during 1921 there were 454 proved cases of hydrophobia in dogs in that State, and over twenty-one hundred persons were forced to take the Pasteur treatment on account of being bitten by rabid dogs. There were nine deaths. Since 1909 more than fifteen thousand people have been given this treatment.

Reference is made to the extinction of rabies in Australia, due to effective laws.

The safe course for other states is to establish strict quarantine against dogs from Georgia.

THE CAUSE OF CANCER.

SIR W. ARBUTHNOT LANE, in an article in the *Medical Press and Circular*, contends that intestinal stasis has a necessary causal relationship to all forms of cancer other than the cutaneous varieties. He bases his argument on the freedom from cancer enjoyed by several isolated races living in the Himalayas, and claims that this immunity is the result of the diet employed, which consists largely of cereals

which are not thoroughly ground or well cooked. The elimination of meat and the use of this diet prevents intestinal stasis.

Correspondence.

A CORRECTION.

Mr. Editor:

In the interest of accuracy, though it has no bearing on the subject matter, I wish to correct a misstatement in my article in the JOURNAL of April 27, on the "Evaluation of Intelligence Tests in Criminal Cases."

In the first of the cases cited, the verdict was guilty of murder in the first, not second degree, and the sentence, death.

Yours sincerely,

GEORGE L. WALTON.

AMERICAN MEDICAL ASSOCIATION, ST. LOUIS, MO., MAY 19-26, 1922.

Mr. Editor:

Replying to your favor of April 15th, regarding rates to St. Louis account of the American Medical Association.

We are pleased to quote the round trip rate from Boston, \$64.52; Worcester, via Gardner, \$62.45; Springfield, via Greenfield, \$60.06. These rates apply via Buffalo.

Sleeping car fares, one way, including surcharge to Buffalo, are as follows: Lower berth from Boston, \$4.50; Gardner, \$4.13; Greenfield, \$3.75. Upper berth from Boston, \$3.60; Gardner, \$3.30; Greenfield, \$3.00.

Yours truly,

F. T. GRANT,

General Passenger Agent, Boston & Maine R. R.

BOOKS RECEIVED FOR REVIEW.

The JOURNAL acknowledges the receipt of the following list of books for review:

Pulmonary Tuberculosis—Its Etiology and Treatment. By David C. Muth. Published by William Wood & Co., New York. 381 pages. Price \$4.50.

Skin and Venereal Diseases. (Practical Medicine Series.) By Oliver S. Ormsby and James Herbert Mitchell. Published by The Year Book Publishers, Chicago. 243 pages. Price \$1.75.

Nervous and Mental Diseases. (Practical Medicine Series.) By Peter Bassoe. Published by The Year Book Publishers, Chicago. 249 pages. Price \$1.75.

The Healthy Child from Two to Seven. By Francis Hamilton MacCarthy. Published by The Macmillan Co., New York. 235 pages. Price \$1.50.

Management of the Sick Infant. By Langley Porter and William E. Carter. Published by C. V. Mosby Co., St. Louis, Mo. 654 pages. Price \$7.50.

Basal Metabolism—Its Determination and Application. Edited by Frank B. Sanborn. Published by Sanborn Co., Boston. 282 pages. Price \$6.

Practical Infant Feeding. By Lewis Webb Hill. Published by W. B. Saunders Co., Philadelphia, Pa. 483 pages. Price \$5.

The Thyroid Gland. Clinics of Geo. W. Crile and Associates. Published by W. B. Saunders Co., Philadelphia, Pa. 288 pages. Price \$5.

Surgical and Mechanical Treatment of the Peripheral Nerves. By Byron Stookey. Published by W. B. Saunders Co., Philadelphia, Pa. 475 pages. Price \$10.

The Place of Version in Obstetrics. By Irving W. Potter. Published by the C. V. Mosby Co., St. Louis, Mo. 138 pages. Price \$5.

Radium Therapy. By Frank Edward Simpson. Published by the C. V. Mosby Co., St. Louis, Mo. 391 pages. Price \$7.

Transactions of the American Gynecological Society, 1921. Edited by G. G. Ward. Printed by W. J. Dornan Press. 403 pages.

Transactions of the American Surgical Society, 1921. Edited by John H. Jopson. Printed by W. J. Dornan Press. 779 pages.

Studies from The Rockefeller Institute for Medical Research. Volume xl. Privately printed. 612 pages.

Transactions of the American Association of Genito-Urinary Surgeons. Vol. xiv. Published by the Williams and Wilkins Co., Baltimore, Md. 267 pages.

A Treatise on Glaucoma. By Robert Henry Elliot. Oxford Medical Publications. 656 pages. Price \$8.

The Mechanism of the Brain and the Function of the Frontal Lobes. By Leonardo Bianchi. Published by William Wood & Co., New York. 348 pages. Price \$5.50.

The Principles of Electrotherapy and Their Practical Application. By W. J. Turrell. Oxford Medical Publications. 276 pages. Price \$3.85.

The Clinical Method in the Study of Disease. By R. M. Wilson. Oxford Medical Publications. 57 pages. Price \$1.50.

Hyperpiesia and Hyperpiesis. By H. Batty Shaw. Oxford Medical Publications. 191 pages. Price \$6.50.

The Oxford Index of Therapeutics. Edited by Victor E. Sorapure. Oxford Medical Publications. 1126 pages. Price \$12.

A Psychoanalytic Study of Psychoses with Endocrinoses. By Dudley Ward Fay. Nervous and Mental Disease Publishing Co., Washington, D. C. 122 pages.

Transactions of the American Otological Society. Volume xv. Part iii. Published by the Society. 434 pages.

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

REPORTED WEEK ENDING APRIL 29, 1922.

Disease	No. of Cases	Disease	No. of Cases
Anterior poliomyelitis	1	Ophthalmia neonatorum	15
Chicken-pox	110	Pneumonia, lobar	114
Diphtheria	145	Scarlet-fever	174
Dog-bite requiring anti-rabic treatment	7	Septic sore-throat	2
Encephalitis lethargica	5	Syphilis	59
Epidemic cerebro-spinal meningitis	1	Suppurative conjunctivitis	14
German measles	30	Tetanus	1
Gonorrhea	109	Trachoma	1
Influenza	26	Tuberculosis, pulmonary	153
Measles	1,010	Tuberculosis, other forms	14
Mumps	146	Typhoid-fever	10
		Whooping-cough	99

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

REPORTED WEEK ENDING MAY 6, 1922.

Disease	No. of Cases	Disease	No. of Cases
Chicken-pox	62	Ophthalmia neonatorum	26
Diphtheria	137		

Dog-bite requiring anti-rabic treatment	3	Pneumonia, lobar ..	96
Dysentery	1	Scarlet-fever ..	183
Encephalitis lethargica	9	Septic sore-throat ..	1
Epidemic cerebro-spinal meningitis ..	3	Syphilis	32
German measles ..	17	Suppurative conjunctivitis	15
Gonorrhea	107	Tetanus	3
Hookworm	1	Trachoma	5
Influenza	12	Tuberculosis, pulmonary	137
Measles	815	Tuberculosis, other forms	23
Mumps	94	Typhoid fever	9
		Whooping-cough	87

PUBLIC HEALTH LECTURERS FOR THE YEAR 1922.

The Committee on Public Health of the Massachusetts Medical Society has been able during the past three years to arrange with well known specialists in various medical fields to give talks at meetings of the District Medical Societies on subjects of interest and importance to all practitioners. It is a pleasure to announce that a similar arrangement has been made this year and that the gentlemen named below are willing, without expense to the District Society, to give occasional talks of thirty to forty minutes on subjects relating to the promotion of public health, extending opportunity for questions and discussion. It is suggested that medical societies consider meeting at neighboring public institutions, since such meetings have been most successful in the past, particularly at the tuberculosis sanatoria and state hospitals for the insane.

José Penteado Bill, M.D., Doctor of Public Health, Specialty: Preventive Medicine.

Frank C. Dunbar, M.D., Bacteriologist. Instructor in Bacteriology and Pathology, Tufts College Medical School.

Walter E. Fernald, M.D., Superintendent, Massachusetts School for the Feeble-minded.

Timothy Leary, M.D., Professor of Pathology, Tufts College Medical School; Medical Examiner, Suffolk County.

Edwin H. Place, M.D., Physician-in-Chief, South Department, Boston City Hospital. Specialty: Contagious Diseases.

C. Morton Smith, M.D., Chief of Department of Syphilis, Massachusetts General Hospital.

George Gilbert Smith, M.D., Assistant in Department of Genito-Urinary Diseases, Massachusetts General Hospital. Specialty: Genito-Urinary Diseases.

Lesley H. Spooner, M.D., on Staff of Out-Patient Department, Massachusetts General Hospital, Specialty: Specific Diagnosis and Treatment of Pneumonia.

William C. Woodward, M.D., Health Commissioner, City of Boston.

George H. Wright, D.M.D., Lecturer on Dental Hygiene, Harvard Dental School. Specialty: Dental Surgery.

Thomas F. Kenney, M.D., Director of School Hygiene, City of Worcester. Specialty: Full time School Health Officer.

Secretaries of District Medical Societies writing to ask for these lecturers will kindly designate the topic, the place and the hour of meeting as well as the name of the desired speaker, thus eliminating unnecessary correspondence. Please address communications to the Secretary of the Committee, Annie Lee Hamilton, M.D., 164 Longwood Ave., Boston 17.

[Note: The Committee on Public Health feels that this notice may have escaped attention, for few applications have been received. Each lecturer is an authority and would present his subject in an interesting and instructive manner.]

NOTICES.

NEW YORK AND NEW ENGLAND ASSOCIATION RAILWAY SURGEONS.—The thirty-second annual session of the New York and New England Association Railway Surgeons will be held at the Hotel McAlpin, Broadway and 34th Street, New York City, on Saturday, October 28, 1922, under the presidency of Dr. Donald Guthrie of Sayre, Pa. A very attractive and interesting program is being arranged for this session.

THE RESEARCH CLUB OF THE HARVARD MEDICAL SCHOOL.—At the meeting to be held on Friday, May 19th, in the Amphitheatre of Building A, Dr. R. M. Ferry will talk on "Recent Developments in the Chemistry of Hemoglobin."

NEW ENGLAND SURGICAL SOCIETY.

C. A. PORTER, *Pres.* P. E. TRUESDALE, *Sec.*
H. L. SMITH, *Vice-Pres.* P. P. JOHNSON, *Treas.*

To the Members of the Society:

The fifth annual meeting will be held at Burlington, Vt., September 22 and 23, 1922, with headquarters at Hotel Vermont.

The following is a tentative outline of the program:

FRIDAY.

- 9 A. M.—Operative Clinic, Mary Fletcher Hospital.
- 11 A. M.—Dry Clinic, Mary Fletcher Hospital.
- 12:30 P. M.—Lunch at Ethan Allen Club.
- 2 P. M.—Scientific program, Hotel Vermont, Roof Garden.
- 4 P. M.—Steamer Ticonderoga—Boat party to points of historic interest and rare scenic beauty on Lake Champlain.
- 7 P. M.—Annual dinner on board steamer Ticonderoga.

SATURDAY.

- 9 A. M.—Reading of papers—Hotel Vermont.
 - 12:30 P. M.—Lunch, etc., at Hotel Vermont.
 - 2 P. M.—Completing the scientific program.
- The invitation for the 1922 meeting to be held at Burlington has been most cordially extended by the Vermont members.
- No part of New England is more picturesque and more memorable in American history. No section of New England is more worthy of a largely attended meeting. So plan to make September 21 and 22 a part of your vacation.

Members are invited to prepare papers for this meeting. The title of each paper should be in the hands of the secretary on or before June 1.

P. E. TRUESDALE, *Secretary*.

CONGRES DES DERMATOLOGISTES ET SYPHILIGRAPHES.

A Congress of Dermatologists and Syphilologists, conducted in French, will take place in Paris on June 6th, 7th, and 8th, 1922, under the patronage of the Société Française de Dermatol. & Syphiligraphes.

Those eligible to regular membership in the Congress are: (a) Members of National Societies of Derm. & Syph.; (b) Doctors interested in Derm. & Syph.

Subscription to the Congress will be sixty francs. The meeting will be held at the St. Louis Hospital at 9 A.M. and 2 P.M. At the morning meetings patients will be shown and special papers will be read. The afternoon sessions will be given to the discussion of the following papers:

1. Epidermomycoses (excluding ringworm of the scalp), M. le Dr. Petges (Bordeaux).
2. Subacute Inguinal Lymphogranuloma of Venereal Origin, M. le Prof. J. Nicolas et M. le Dr. Favre (Lyons).
3. Colloidal reactions in venous syphilis. Reactions to Colloidal Gold, to Gum Mastic, to Colloidal Benzoin, M. le Dr. Guy Laroche.

For the Committee,

HUDELO.

Communications and subscriptions to the Congress should be sent before May 15th, 1922, to M. le Dr. Hudelo, 8 rue d'Alger, Paris. Titles of papers, accompanied by a short résumé, should be sent to M. le Dr. Hudelo before May 1st.

SOUTHERN MINNESOTA MEDICAL ASSOCIATION.

Mid-Summer meeting June 19th and 20th, 1922, at Rochester, Minnesota. Among the speakers from outside the state who will be guests of the Association and will appear on the Scientific Program are: Dr. W. B. Cannon, Boston, Massachusetts; Dr. Judson Daland, Philadelphia, Pennsylvania; Dr. Fred H. Albee, New York City, New York; Dr. William B. Coley, New York City, N. Y.; Dr. George E. Shambaugh, Chicago, Illinois; Dr. Willis Campbell, Memphis, Tennessee; Dr. Herman L. Kretschmer, Chicago, Illinois; Dr. Preston H. Hickey, Detroit, Michigan; Dr. Nathaniel G. Alcock, Iowa City, Iowa; Dr. George V. I. Brown, Milwaukee, Wisconsin; Dr. M. G. Seelig, St. Louis, Missouri; Dr. George W. Heuer, Cincinnati, Ohio.

The program for the forenoon sessions of Monday June 19th, and Tuesday, June 20th, will consist of Surgical and Medical Clinics, and Demonstrations in all departments at the following hospitals: St. Mary's Hospital, Colonial Hospital, Worrell Hospital, Curie Hospital, Olmstead Hospital, Clinic Building.

The program for the afternoon sessions will consist of Scientific Papers, and the Mid-Summer Banquet will be held at the Gymnasium, High School Building, Monday evening, June 19th, 1922, at 6 P. M.

Make hotel reservations early by addressing Mr. Roy Watson, Chairman Committee of Arrangements, Southern Minnesota Medical Association, Rochester, Minnesota.

The official program will be published by May 15 1922.

DR. H. W. MEYERDING, *Chairman*, Rochester.

APPOINTMENTS BY MAYOR CURLEY.

Dr. Paul F. Butler has been promoted from the position of Assistant City Physician for the x-ray service to the position of X-Ray Service Physician.

Dr. Alexander MacMillan has been appointed to the position made vacant by the promotion of Dr. Butler.

A CORRECTION.

Dr. William Joseph Delehanty's name should have appeared in the list of Councillors elected by the Worcester District Society at its annual meeting.

The Boston Medical and Surgical Journal

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May 25, 1922.

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Original Articles.

DISPENSARY DEVELOPMENT, WITH ESPECIAL REFERENCE TO THE OUTPATIENT DEPARTMENT OF THE MASSACHUSETTS GENERAL HOSPITAL.*

BY PAUL D. WHITE, M.D., BOSTON.

1. *Introduction.* One of the most fascinating fields in the history of mankind is that of the development of knowledge of the human body and of its diseases and their treatment. For physician, nurse, medical student, and the lay public itself, the history of medicine is full of inspiration. A page or two of the story of medical progress during the past century comes from the Massachusetts General Hospital, one of the most vital parts of which has been and is, more and more, the Outpatient Department. I wish to outline in brief the growth of dispensaries in general and of this dispensary in particular. We can all do better work if we know more of the history of the workshop and of its weak as well as of its strong points. My chief help in the preparation of this account has come from the annual reports of the trustees of the hospital; I acknowledge with great pleasure, also, the assistance of Dr. Coolidge, Mrs. Myers and Miss Cannon, and of Dr. Cabot for my visit to the dispensaries of various cities a year ago.

*Read at a meeting of the Out-Patient Department Staff, Massachusetts General Hospital, November 30, 1921.

2. *Dispensaries in General.* The first historical account of the practice of medicine has been given to us by Herodotus. In describing the beginnings of medicine in Babylonian times, more than two thousand years before Christ, he wrote: "They bring out their sick to the market place, for they have no physicians; then those who pass by the sick person confer with him about the disease, to discover whether they have themselves been afflicted with the same disease as the sick person, or have seen others so afflicted; thus the passers-by confer with him, and advise him to have recourse to the same treatment as that by which they escaped a similar disease, or as that they have known to cure others." Finally, as time went on, physicians developed in Babylon until eventually, as with the Egyptians, there was a special doctor for every disease.

Several centuries before Christ there existed in a little plain in Argolis, in Greece, near Epidaurus, a sanctuary of Æsculapius. Its chief purpose was to provide aid—divine and human—to cure disease. It was a large spa. To it people flocked from all Greece. Hotels and camps housed the sick who were taken to the dispensary for treatment. On some of the votive columns are engraved still the diagnoses of some of these cases. Paralysis of one hand, blindness in one eye, a foreign body (spear point) in the jaw, ulcer of the stomach and empyema were all reported as cured. Many of the patients remained for a short while in the

hospital to receive the prayers of the priest-doctors and the ministrations of the pet snakes. If they were likely to die, however, they were taken outside of the sanctuary—thus their mortality figures remained very low. In the course of a tour of inspection of the military and civilian hospitals of the Peloponnesus two years ago, I had the opportunity of visiting this famous hospital center of Epidaurus. The ruins are still imposing and will long outlast those of many of the sanatoria of modern times.

There was little, if any, advance in hospital or dispensary development under later Greek and Roman rule, and it remained for the Mohammedans in Egypt, Syria and Persia to build up the dispensary in the Middle Ages. Garrison states that "as early as 707 A. D. the Caliph El Welid had founded a hospital at Damascus. Another was established at Misr in Egypt in 797, another at Cairo in 874, two at Bagdad in 918, and two others in the same city in 925 and 977. In course of time dispensaries and infirmaries existed in all the important cities of the Eastern Caliphate, and about 1160 a Jewish traveler found as many as sixty of these institutions in Bagdad alone. The largest and best appointed of the Mohammedan hospitals were those founded at Damascus (1160) and Cairo (1276). In the former of these, treatment was given and drugs dispensed free of charge for three centuries. As late as 1427, it was said its fires had never been put out since its opening. The great Al-Mansur hospital of Cairo was a huge quadrangular structure with fountains playing in the four courtyards, separate wards for important diseases, wards for women and convalescents, lecture rooms, an extensive library, *out-patient clinics*, diet kitchens, an orphan asylum and a chapel. It employed male and female nurses, and had an income of about \$100,000." "The Bagdad Caliphate was especially noted for its *ophthalmic dispensaries* and lunatic asylums." The gradual and belated development of hospitals and dispensaries in Europe towards the end of the Middle Ages owed much to the Mohammedan school of medicine. The better part of the European pharmacopeia for centuries was made up of the Arabian and Egyptian *materia medica*.

Very little further progress in dispensaries was made, however, until at the end of the seventeenth century London was aroused by the great need of medical treatment for the poor. In 1687 the College of Physicians of London voted to give its services to the poor without charge, but Apothecaries' Hall would not lower its prices for drugs. Finally, on December 22, 1696, fifty-three leaders of the College of Physicians signed an agreement to pay to Dr. Thomas Burwell, one of their number, ten pounds apiece for medicines, and the first Dispensary in the English-speaking world was

opened, in the building of the College of Physicians. It was nearly one hundred years later before other dispensaries were begun in London. There were five in 1801, and fifty thousand poor were relieved annually through these, one-third of the patients being visited in their own homes.

In the United States the first dispensary was established in 1786 on Independence Square in Philadelphia. The second was opened in New York in 1790, and in Boston, in 1796, the third was begun—the Boston Dispensary—on the spot where Thompson's Spa now stands. In September, 1796, the Committee of the Boston Dispensary said,* "It having been found by experience, both in Europe and in several of the capital towns in America, that dispensaries for the medical relief of the poor are the most useful among benevolent institutions, a number of gentlemen propose to establish a public Dispensary in the town of Boston, for the relief of the sick poor; which they presume will embrace the following advantages:—

"1. The sick, without being pained by a separation from their families, may be attended and relieved in their own houses.

"2. The sick can, in this way, be assisted at a less expense to the public than in a hospital.

"3. Those who have seen better days may be comforted without being humiliated; and all the poor receive the benefits of a charity, the more refined as it is the more secret."

"The early Boston Dispensary consisted merely of a drug store, with a physician who was to be in attendance daily except Sundays. Ambulatory cases might see him there at eleven o'clock. Patients too sick to come for treatment were to be visited at their homes." Dr. John Fleet was the first physician of the Boston Dispensary; he treated eighty patients during the first year. As the city grew, more physicians were added, the city being divided into districts. Oliver Wendell Holmes was a district physician at one time; he repeatedly insisted on the great value to the dispensary of giving student instruction. Students were associated with the Boston Dispensary as early as 1827. Regular clinics as we know them today were not opened, however, until 1856, ten years after the establishment of the Outpatient Department of the Massachusetts General Hospital.

Further development of dispensaries in the United States was very slow after the first three were started just prior to 1800. Even in 1900 there were but one hundred, it is claimed, in the entire country. In the last twenty years they have spread like wildfire. In 1917 there

*Davis, M. M., Jr., and Warner, A. R.: "Dispensaries, Their Management and Development." New York, 1918.

were over five hundred clinics or dispensaries in the United States for tuberculosis alone.

3. *Early days of the Outpatient Department of the Massachusetts General Hospital.*—This hospital, planned early in the nineteenth century, received its first inpatients just one hundred years ago. In my search through the trustees' reports of its early years I find no mention of the time when ambulatory cases were first seen and treated as outpatients. Already in 1828 mention had been made of the hospital's service to the community in loaning surgical apparatus to patients outside the hospital, but the first note as to the Outdoor department appears in 1844 (April 17), and reads as follows: "Messrs. Rogers and Amory were appointed a committee as to physicians charging fees to patients able to pay, who subsequently reported in favor of the same in case of outdoor patients." On October 16, 1846, the very day of the first public demonstration of ether anesthesia in a surgical operation, it was voted that books be "ordered to be kept as a record of all outdoor patients." Thus the official opening of the Outpatient Department of the Massachusetts General Hospital occurred on the first Ether Day. Probably for at least a dozen years previously a few patients had been seen each year by the medical and surgical staff and treated without admission to the wards as house cases.

OUTPATIENT RECORDS.

The early records consisted simply of a line in a large notebook for each patient's name, age and symptom or disease, with sometimes a few words as to treatment. In the basement of Ward I, I found some of these old record books, the earliest one in a rather hurried search dated 1862. As the Outpatient Department developed, more lines were devoted to each patient, until in about 1890 four entire lines across both pages of a large notebook were reserved for each case, but these four lines had to suffice for later visits as well as for the first one. At the beginning all cases were entered in one book; when there was a separation into medical and surgical departments in 1863 two books were used. Finally, as each new special department was added, its own book, and later its own card system, was inaugurated. The books continued to be used until August 15, 1898, when the first outpatient card system was begun. These double cards were used until August 1, 1903, when the present larger single cards were introduced, stored in folders in special files in a central record room. This system, a vast improvement on the old, was copied extensively throughout the country. These cards still prove effective, provided records on them are carefully kept. The greatest fault with them, aside from careless records that may

be entered on them, is that they are not enough associated with the house record system. An ideal arrangement would be a central record room, with uniform loose-leaf records for both house and Outpatient Department, such as exists at the Harriet Lane Hospital for Children at Johns Hopkins under Dr. Howland. Under present conditions here, if an outpatient case is admitted to the house the outpatient record is abstracted by student or house officer and entered at the beginning of the house history. When the patient is discharged to the Outpatient Department from the house a satisfactory summary is made out by the house officer on a card the size of the Outpatient record card and including statements about the course and treatment of the patient while in the ward, with laboratory data, x-ray and special consultants' opinions and advice as to the future. This card is sent to the Outpatient Department to await the arrival of the patient, whether he is a new or an old case there. It is obvious from this brief discussion that much time is lost and material duplicated in copying and abstracting records from both directions in the absence of a central record system. Finally, with regard to records, I was much interested last autumn, in my visits to various dispensaries in the country, to examine their record forms. Sometimes very elaborate printed forms of many pages were in use in clinics—these were almost universally incomplete when actually put to use—there was not time to fill them out and much paper and filing space were wasted. The simpler records were always preferable except where special studies of special groups of cases were in progress. An example of this latter type of record is that proposed by the Association for the Prevention and Relief of Heart Disease in New York for the careful statistical study of heart disease. I should not recommend that for general use in our clinics any elaborate printed forms be employed. It may be that simple printed forms, a step beyond the blank card, are advisable. The general employment of stenographers I believe to be at present rather a luxury in a teaching clinic where the students are learning to take proper histories and to record physical examinations.

STAFF.

To turn from the records to the staff, I have found that on May 23, 1858, "Dr. Benjamin Shurtleff Shaw was by ballot elected Resident Physician and Dr. Samuel L. Abbott Physician to Outdoor patients at the Hospital, in conformity with the new arrangement of offices and distribution of duties which had been approved by recommendation of the Committee on the Internal Administration of the Hospital." Thus Dr. Abbott was the first O. P. D. physician. He saw medical, surgical and all

kinds of special cases. He could, of course, and did call in consultation the medical and surgical staff of the hospital as the need arose. Undoubtedly before his appointment the outpatient cases were seen and treated by the house staff. The steadily increasing number of outpatient cases had necessitated the change. In 1847, the first entire year that records were kept, 328 patients were treated in the Outpatient Department; in 1848, 378; in 1850, 294; in 1855, 645. In 1859 "the number of Outpatients treated was 3,165. Of these, 1,104 were surgical and 2,061 were medical." The report for the year states that "most of them were supplied with medicine, bandages, splints, and other surgical apparatus. Teeth have been extracted, likewise, for a large number of people, estimated at about 500. This class of patients has been rapidly increasing in numbers during the past few years. They come not merely from the immediate neighborhood, but from all parts of the city and adjoining towns."

Another quotation from the report of 1862 is as follows: "Besides these House-patients, there have been 4,975 applications from 'Outpatients,' 4,800 of whom were treated and 175 not treated. These patients call daily, or as often as is needful, at the Hospital, and receive medical and surgical advice and assistance. By means of this arrangement, the beneficent work of the Institution is widely extended, and a vast amount of disease and suffering is prevented because many receive advice and medical aid during the earlier and curable stages of disorder who, without such opportunity, might delay until they become severely sick, and perhaps past cure." This extract sounds like one from the recent writings of Sir James Mackenzie, but it is dated 1862.

In 1863 the trustees reported that "Dr. Abbott, who has for so many years filled the position of physician to outpatients with untiring fidelity, and whose report, being entirely statistical, is embodied in the accompanying tables, states that the whole number of applicants has been 5,214, of whom but 227 were not treated, while 1,590 prescriptions were furnished without charge. When it is considered that ten years ago there were but 358 outpatients, it will be seen what an important branch of the hospital this dispensary department has become. The medical cases, which exceed the surgical by nearly three to one, have been almost exclusively treated by the physician in person, while the surgical cases have come under the charge of the visiting surgeons. As the latter have their time greatly occupied by their house duties, and as they would still be able to lend their advice and skill in matters of importance, it may hereafter be deemed advisable, with their concurrence, to appoint a surgeon to outpatients."

Dr. Algernon Coolidge, father of our Dr.

Coolidge, was so appointed in 1864. And in 1867 another physician was added, making a staff of two physicians and one surgeon. Gradually, as the years went by, more physicians and surgeons were appointed to the Outpatient Department, until in 1882, just before there was opened a special Outpatient building, there were six physicians and three surgeons, not including the physicians to the special departments.

In 1868 a special dental service was instituted in the Outpatient Department, but it was not until 1873 that there was an Outpatient dentist officially appointed. He was Dr. Wilson. In 1869 a skin clinic was the second of the special departments to be inaugurated. Dr. J. C. White was appointed to take charge of this clinic. It is said that much discussion was necessary before the hospital staff would agree that the skin clinic would be worth while. In 1872 two more special departments were begun, the nerve clinic under Dr. James J. Putnam and the throat clinic under Dr. F. I. Knight. In 1873 the fifth special clinic, that for ophthalmology, was begun under Dr. Wadsworth, but no further special departments were added until 1887, when Dr. J. O. Green was appointed aural surgeon.

A few statistics for 1873, nearly 50 years ago, may be of interest. At this time the total number of beds in the hospital was 215. Altogether there were 13,517 outpatients, averaging two visits apiece. The daily average was 87. Of the 13,517 cases, 6,922 were Americans and 6,595 foreigners; 8,565 were residents of Boston and 4,952 of other places; 2,820 belonged to the Female Medical, and 2,529 to the Male Medical and Children's Department (in those days men and children were seen in the same clinic). The surgical clinic numbered 3,109; the dental was the largest with 3,709. The skin was the biggest of the other special clinics with 844 patients for the year, the throat department next with 320 patients; 157 cases visited the nerve clinic and 29 the eye clinic, which had just opened. The comments in the Trustees' Report for this year were that "the importance and usefulness of this department of the Hospital are constantly increasing. The time and attention given by the officers connected with it makes it practicable to treat many patients without admitting them, or with a very brief stay in the house, who would otherwise occupy the beds." This increases the expenses of the Outpatient Department, "but the usefulness of the whole Institution is proportionally progressive." *These observations are very important, for they apply just as surely at the present day as at that time.* Not only for treatment but for study to establish a correct diagnosis may a patient be followed in the Outpatient Department. Not only may the hospital beds be saved for the sickest or the

most obscure cases, but the patients themselves can often be spared unnecessary hospital expenses by keeping them in the Outpatient Department. We have, I believe, become a little too hasty in recommending cases to the wards for study.

Two interesting notes appear in the report of the Trustees for 1882. The first is as follows: "On June 16 a petition was presented to the Trustees from the surgeons in the special department for outpatients, complaining that the personal investigation of applicants instituted a year ago was depriving them of many interesting and instructive cases, and asking that all cases hereafter be admitted, regardless of the pecuniary circumstances of the applicant." The Trustees could not agree to this, of course, but did recommend "that liberal regard should be paid to the written recommendations of physicians that cases are proper ones for admission by reason of the obscurity and educational value of the disease as well as by reason of the poverty of the applicant."

The personal investigation of applicants had been carried on since 1877, when the Trustees reported that the great increase in the number of outpatients had engaged their serious attention and had led to the adoption of some measures to ascertain, so far as was practicable, how large a proportion of the applicants were of the class properly entitled to such relief. During the greater part of the year a person had been employed to ask a small fee from all applicants who seemed to be able to pay something, and to investigate the circumstances of all who came regularly for treatment. The result of these inquiries proved that a large proportion of the patients were deserving poor.

Thus as early as 1877 a charge for admission to the Outpatient Department had become a routine measure. Very small at first, it has been increased, until now for adults the charge for each visit is 50 cents, if it can be afforded. In my dispensary trip last autumn there was but one other Outpatient clinic that I visited which I found to be self-supporting. That was the Mayo Clinic in Rochester, Minnesota.

The second item of interest in 1882 was that "a friend of the late Dr. George H. Gay has given us \$25,000 as a memorial of him. After full consideration, the Trustees voted to apply the money for a building for the Outpatient Department, believing that to be the greatest need of the Hospital. This will supply a most pressing want, as our present accommodations have long been totally inadequate for the needs of that department."

4. 1883-1903.—In 1883 the new Outpatient Building was opened with much acclaim. It was "justly regarded as a model building," but in less than ten years it had been so much

outgrown that a new story had to be added to it. This was done in 1891 at a cost of \$8,000. This "model building" is the one which now houses the x-ray department below and the orderlies upstairs, but even for these purposes it is quite inadequate now.

Prior to 1883 the outpatients were seen, I believe, in the rooms in front of the second surgical amphitheatre (which later housed the Zander apparatus). This amphitheatre was erected in 1867. Prior to that date, and probably also for some time between 1867 and 1883, the outpatients were seen in some one or two of the old rooms on the ground floor of the Bulfinch Building—which ones I do not know.

In 1893 a new office was established, that of Examining Physician to Outpatients. Dr. John H. McCollum was the first incumbent and during the next year excluded 500 cases of contagious disease out of over 25,000 patients whom he examined.

In 1896, twenty-five years ago, 29,867 new patients visited the Outpatient Department, with a total for the year of 91,468 visits by old and new cases. The staff consisted of six physicians, six surgeons, two nerve, two skin, two throat, two eye and one ear specialists. In 1897 x-ray work began in the hospital.

On June 3, 1898, it was voted in accordance with the recommendation of the visiting physicians and surgeons of the General Hospital, "that the seniors in the Outpatient Department for diseases of the skin, of the nervous system, of the throat, and of the eye be regarded as members of the Visiting Staff, so far as recognition confers the right to attend and vote at the meetings of the Staff which are called to consider general questions of Hospital policy." "Under the terms of this vote, Drs. James C. White, James J. Putnam, Algeron Coolidge, Jr., and Oliver F. Wadsworth became members of the Visiting Staff."

In 1899, only sixteen years after the opening of the model Outpatient building, it was proposed to build a new one, and "on March 23, 1900, a communication was submitted from Mr. Thomas E. Proctor, offering to pay one-half the cost, not exceeding \$75,000, of a new building for the Outpatient service of the General Hospital, the Trustees to appropriate the balance. Thereupon, the Committee on Buildings and Repairs were instructed to procure plans and estimates for such a building; and the Outpatient staff were requested to appoint from their number one physician and one surgeon to act with Drs. R. H. Fitz, J. C. White and J. J. Putnam, as a Committee of Consultation in the preparation of said plans." The cost of the building proved to be \$226,225. In 1901 the foundation of the new building was under way, and on October 16, 1903, it was opened for inspection. The occasion was her-

alded as a notable one, the building being regarded by medical and surgical experts as the best of its kind in the world. At the present time it still continues as one of the very best, but we are already feeling the need of new space. The inauguration and growth of special clinics and the expansion of the old general clinics may necessitate an addition to the building some day.

5. 1903-1921.—The opening of the new building in 1903 allowed the rapid development of new departments. This same year the orthopedic department was opened under Dr. Joel E. Goldthwait, and the children were separated from the men, to constitute the Children's Medical Outpatient Department. The central record room, with the new record cards, and the new lecture rooms were much appreciated. The new hydrotherapeutic and mechanotherapeutic departments were also begun with the opening of the present Outpatient building.

In 1905 occurred the beginning of the world-famed social service work in the Outpatient Department under Dr. Richard C. Cabot. The first annual report for the year from October 1, 1905, to October 1, 1906, is entitled "First Annual Report of Social Work *Permitted* (italics mine) at the Massachusetts General Hospital." The opening words of this report are worth quoting: "In the Outpatient Department of the Massachusetts General Hospital (and I suppose in most other hospitals) there occurs many times each year a scene not unlike that described in 'Alice in Wonderland':

"'Have some wine,' said the Hatter.*

"'I don't see any wine,' said Alice.

"'There isn't any,' said the Hatter.'"*

"Without any sense of the humor and pathos of the situation we say (in substance) to many patients: 'Take a vacation,' or 'Get a job,' 'Get a set of teeth,' or 'Get a truss.' There is none in sight and no means of getting any. What do we do then? We pass cheerfully to the next patient.

"This is one of the gaps which the social workers have tried to fill at the Massachusetts General Hospital. Believing that when a hospital undertakes the care of a patient it ought to *do it* and not be content with going through the forms of doing it, we have tried to fill the gap between good intentions and their fulfillment."

Out of the small beginnings of the social service work in the Outpatient Department has grown up the present extensive Social Service Department caring for inpatients as well as outpatients and with ramifications into every clinic in the hospital. It has proved to be one of the most vital structures of the entire insti-

tution. Miss Ida Cannon, the present chief of the Social Service Department, began in 1905-06 as an "assistant outside the Outpatient Department." Now she is very much in the *inside* of the hospital. In 1906 the Trustees referred to Social Service as an unofficial department of the institution; of 20,010 new cases, 518 were referred to it—not, however, it was stated, "as a criticism of the hospital."

In 1911, ten years ago, there were six physicians to medical outpatients and four assistant physicians, four surgeons and four assistant surgeons, five physicians in the skin clinic, eight in the nerve clinic, eight in the throat clinic, five in the orthopedic clinic and three in the genito-urinary clinic. The "G-U" clinic had been instituted as a separate department the year before—in 1910.

In 1913 a department of syphilis was organized and new rooms constructed on the top floor of the Outpatient building for this clinic, which was called the "South Medical Department." Dr. C. Morton Smith was appointed to take charge of it. This same year (1913) a new clinic was established for the study of industrial disease, but the war delayed the preparation of special quarters for it until the present time. Rooms are now being built on the second floor of the Outpatient building to house this clinic under the charge of Dr. Wade Wright.

Still another innovation occurred in 1915 when a consultation clinic for persons of moderate means was established in the Outpatient building. It has met twice a week in the afternoon. Since this large building had remained idle most of every afternoon the consultation clinic has served to increase its usefulness. During the war it was discontinued, but it has since been resumed.

In the Trustees' Report for 1915 a tribute was paid to women volunteers who had for some time been serving as clinic secretaries or social workers in the Outpatient Department. Their work in every clinic had grown "increasingly useful."

A comment in the report for 1915 is worth quoting: "No physician (in the Medical Department) should see more than six new cases or twenty 'old' ones (requiring little or no physical examination) within three hours." It goes on to say, "We have left student-assistants out of account in this calculation because the help they give is just about balanced by the time that must be spent in teaching them if they are to be given any fair return for their labor." I quite agree that no physician in the Medical Department should see more than six new cases or twenty "old" ones in three hours, and if only two hours are spent in the clinic he should not see more than four new cases or twelve "old" ones. Under present arrangements in the medical department not only must

*Although the Hatter was present at the famous Mad Tea Party it was the March Hare who asked Alice to have some wine.

the physician often see an average of four to six or even more new patients but he must also see such "old" patients as belonged to him on previous visits as new cases. Thus it is possible that on busy days he may have to see eight or ten new cases and five or six "old" ones. This is too many. Such a situation should be discountenanced in the medical department. In the special clinics where a complete examination may not be essential this may not apply. A kind of clearing house test to lighten the load has been tried out in the Medical Department. It has, however, proved ineffective. Of seventy new cases which I saw personally in five days only four could be cleared directly from the Female Medical to other departments where they belonged. This speaks well for the clearing house system at the Admitting Desk in the basement, but it also shows that if we want to maintain quality of work we must decrease quantity, as occasion demands. In private practice we would not think of seeing more patients than we could properly care for. Even more careful should the hospital be in its effort to maintain a high standard. In addition to a reasonable restriction of new cases admitted daily to the Outpatient Department, it would seem wise eventually to give patients appointments by hours as well as days for later visits.

The second point concerning the students is also of interest. The view expressed is a little narrow. We mustn't lose patience just because at times a student may seem in the way. It is a fact universally recognized that a teaching hospital progresses—the presence of the students is a stimulant and of vital importance to the hospital, including its Outpatient Department. To measure the value of the student merely by the amount of immediate help he can give the clinic is very short-sighted. He is another essential for the maintenance of our high standards.

During the past ten years special clinics have grown up within special clinics and one finds more and more mention of them in the reports of recent years. One of the very first of these was established as long ago as 1905 in the Medical Department and proved of great value in pointing the way. It was the tuberculosis class which helped in the pioneer work of the nationwide campaign against tuberculosis. In 1915 mention is made of the establishment of the clinic for the treatment of non-pulmonary tuberculosis in 1913. Also in 1915 there were special assignments under the Medical Outpatient Department in diabetes, thyroid disease and heart disease. In addition most of the gastric cases were seen by two physicians. Cases of lead poisoning, of sterility, and for phthisis diagnosis were handled also in special clinics. In 1916 a nutrition clinic for children was established, and mention is made of good

attendance at the clinic for the study of hay-fever and anaphylaxis. A posture clinic has been added to the list, and since the war also an arthritis clinic and a clinic for convalescents. Plans are now under way to establish a diet clinic (to help take care of obesity, nephritis and heart disease as well as to be correlated with the diabetic clinic) and also a clinic for blood diseases. Comment should be made on an extract from the Trustees' Report for 1919, which reads as follows:

"First tuberculosis, then syphilis, gonorrhoea, diabetes, stomach troubles, poliomyelitis, children's nutrition, speech defects, asthma, and heart disease have been separated from the general clinics in our Outpatient Department and are now treated in special clinics. In each of these a physician treats for the time being one disease only. This policy originated in this hospital and has been widely copied elsewhere. There is no possible doubt of its value to the patient. . . .

"The same principle of assembling like groups of patients is being carried out *within* such clinics as the children's, the nerve, the orthopedic and the genito-urinary. The babies with eczema, the children with heart disease, the dyspeptics, the epileptics, the scoliotics, the cases of gonorrhoeal vaginitis in children, are separated, and each group treated by a single physician, although special rooms are not assigned to each.

"The dangers of this method are to the physicians: it tends to make keen, narrow specialists, skillful and interested in one disease only, while in the general clinics from which all these groups are withdrawn the interest is diminished and the men tend to lose zest. This danger can be avoided only by a system of rotation or exchange in the special clinics. . . . The physician who passed in succession through the diabetic clinic, the asthma clinic, the tuberculosis clinic, and the gastro-intestinal and cardiac clinics would get a training probably unequalled anywhere in this vicinity."

Much of all this is true, I believe. The patients are certainly benefited, and experts along certain lines are developed. I believe, also, that the medical staff, particularly those men who are engaged in general practice or in the practice of internal medicine, would be much helped by a rotation of service as assistants in the special clinics, as well as in the general medical clinic. This is actually now in effect and has been during the past year under the new arrangement in the Medical Department. I believe it is working out satisfactorily. But the wisdom of having the chiefs of the special clinics also rotate is very doubtful. In fact, the present high level and proposed higher level of these special clinics would drop seriously if the experts should abandon the fields in which they are expert. In these days of rapid ad-

vance in medicine, a man cannot be expert in several different branches. This has been proved over and over again. Dispersion of energy means loss of standing in the front line of medical progress. A man may naturally be broad or narrow minded; he will continue to be, whether he is a general practitioner or an expert specialist.

Finally, with regard to the special clinics, I know that there is a danger of their being overcrowded. The enthusiasm of the clinic chief builds up the clinic, but before he is aware, he is hampered by numbers. I believe that the special clinics should serve three purposes: first, to improve diagnosis and treatment for the patient's sake; second, to educate the staff and students; and third, to make actual contributions to the sum of human knowledge by research. None of these functions can be properly fulfilled if the clinic is too large. When it grows unwieldy, cases should be sent back to the general clinics to be followed there with the advice already given by the special clinic. This will not only help out the special clinics, but it will also counteract in a very beneficial way the criticism directed against the special clinics for robbing the general clinics of interesting and instructive cases.

And now, in conclusion, what of the present activity of the Outpatient Department? In attendance, it reached its zenith in 1917, when there were 205,524 total visits, with 31,104 new cases, but I believe that in 1920, with but 165,676 total visits and 25,302 new cases, it did a better service to the community. With the Great War the attendance fell off and still remains below the pre-war figures. We should not try to have more patients until we have more room and a larger staff. There are now on active duty in the Outpatient Department an assistant superintendent with his staff of clerks in record room and at the admitting desks, and with his messengers, a corps of thirteen house officers (soon to be fifteen, when the medical seniors take their place there in the future), a head nurse with her staff of nurses, a chief of the Social Service Department with her staff, 34 visiting physicians in the general and special clinics of the Medical Department, 15 surgeons, in the Surgical Department, 9 physicians in the Dermatological Department, 13 in the Neurological, 12 in the Children's Medical, 18 in the Laryngological, 14 in the Orthopedic, 9 in the Genito-urinary, 6 in the Syphilis, and 7 in the Dental Clinic. Since the Eye and Ear Infirmary moved to its present location close to the hospital, eye and ear cases have not been treated in the Massachusetts General Outpatient Department, but have been sent there instead.

We owe to the community the most careful and conscientious work, not alone in the study

and treatment of individual patients, but also in medical research. The study of early symptoms and signs of disease, the correlation of the work of the various departments and of the Outpatient Department and the House, and the follow-up of our cases (in which the Social Service Department can be of great value)—all these problems have been generally too much neglected in the past and yet are full of promise for investigation. Of course, the special clinics are the most fruitful in research, but the general medical clinics, too, may be studied with profit if they are not overcrowded. Always we must be careful that we do not lose sight of the forest for the trees. Concentration and well-tempered enthusiasm will often open up unlimited lines of very useful study. Although the publication of papers for the sake of publication is, of course, to be discountenanced, it is most surely the duty of anyone in this Outpatient Department to publish his work if he has something new or important to describe.

These staff meetings, begun two years ago, are another step forward in the development of the Outpatient Department, and I feel that we can look ahead with confidence to a steady increase in the efficiency and value of this vital part of the hospital to the community.

ACUTE INTUSSUSCEPTION.

BY W. F. HARPER, M.D., BOSTON.

History. The recognition of intussusception as a cause of intestinal obstruction dates back many centuries. Hippocrates suggested treating the obstruction by inflation of the bowel from below, while Praxagoras proposed opening the abdomen, a procedure which is universally practised today, though the first record of abdominal section for intussusception is not found until 1871, when a successful case of laparotomy for intussusception in a child was then recorded by Mr. Jonathan Hutchinson. One of the most important early papers is Leichenstern's monograph appearing in 1893. To Mr. A. E. Barker¹, however, belongs the honor of putting the treatment of intussusception on a rational basis. In an article which appeared in the *Lancet* in 1888, he argued very forcibly for the importance of operating early. However, at this time he could find records of only 73 cases, which showed a mortality of 78 per cent. This was not very encouraging to the profession, and as a result, operation was undertaken late, with a natural failure to decrease the death rate.

Even John Hutchinson, in 1892, although he had previously operated successfully on a child for intussusception, was afraid of laparotomy. When discussing methods of procedure, he says:² "If the patient be an infant, say un-

der two years of age, it will be well to be content with repeated attempts by injection. The results by laparotomy have been so almost invariably fatal, that it is safer to trust to other measures." Old superstitions and old methods of treatment die hard, and it was only gradually that laparotomy became recognized as the right treatment for intussusception. At first, only a very few successful cases of laparotomy were recorded, but this number gradually increased.

Intussusception in infancy is attended with an appalling mortality, some authors giving as high as 73 per cent., and the results are directly dependent upon the duration of the disease prior to operation. Clubbe³, who has written a complete and accurate monograph on intussusception, had a mortality of 50 per cent. in his first fifty cases, a mortality of 25 per cent. in his second fifty cases, a mortality of 8 per cent. in his third fifty cases, and no mortality in his last twenty-five cases. This is, of course, a tribute to the operator's experience, and no doubt the mortality is much lower in the cases which fall into the hands of experienced operators, but the greatest credit belongs to the practitioner who sees that the cases go to early operation.

Definition. The condition called intussusception is caused, according to John Hunter, "by the passing of one part of the intestine into the other, and commonly by the upper passing into the lower."

An intussusception may start at any part of the bowel from duodenum to rectum, but about 88 per cent. of all intussusceptions begin in the region of the ileocecal valve. Cunningham⁴, in his textbook on anatomy, in describing the ileocecal valve, says: "Where the ileum enters the large intestine, the end of the small gut is, as it were, thrust through the wall of the large bowel, carrying with it certain layers of that wall, which project into the cecum in the form of two folds, lying, respectively, above and below its orifice, and constituting two segments of the ileocecal valve. The condition may be compared to a partial inversion or telescoping of the small into the large intestine; it must be added that the peritoneum and the longitudinal muscular fibers of the bowel take no part in this unfolding; on the contrary, they are stretched tightly across the crease produced on the exterior by the inversion, and thus serve to preserve the fold and the formation of the valve."

The ileum nearly always projects four to seven centimeters into the lumen of the intestine. The cecum is very movable, which is due to the fact that it is nearly always covered completely by peritoneum, and lies quite free in the abdominal cavity. The mesentery of the small intestine is relatively much longer in chil-

dren and this increase in length is naturally associated with an increased range of movement of the intestine. Peyer's patches, which play an important rôle in the intussusception, are most numerous and best marked in infants and in the ileum in its lowest part.

Pathology. The pathological changes in acute intussusception are caused by compression of the vessels of the mesentery. The entering mesentery becomes stretched and twisted, and the veins and lymphatics are blocked. The distended veins give way and blood is poured out into the submucosa and on the mucous surface. The intussusception becomes swollen and hard, and it is this swelling which makes the reduction hard, and at times impossible. In some cases, the arterial supply may be cut off and gangrene result. A small amount of straw-colored fluid is poured out into the peritoneal cavity, and this is usually noted as soon as the abdomen is opened.

Etiology—Sex. There is a marked preponderance of males over females. Perrin and Lindsay⁵ found that 64 per cent. of their cases were in males; Fitzwilliams⁶ found 68 per cent. males in 788 cases; Adams⁷ series gave 66 per cent. males; and in a review of 112 cases admitted to the Children's Hospital since 1911, we find 71 males, or 63 per cent. The striking feature in these statistics is the uniformity in ratio of males to females.

Age. Intussusception is really a disease of infancy, as is readily seen from Figures 1 and 2. Of the 112 patients treated at the Children's Hospital, 99 were under the age of two years,—a percentage of 88.3 per cent. The age of the youngest child was six weeks; of the oldest, five and a half years.

If you will observe the chart of age incidence in months during the first year, you will see that the vast majority of cases occurred between the fifth and ninth months, and that the number rapidly diminished after the ninth month. Sixty-six per cent. of the cases occurred between the fifth and ninth month. Perrin and Lindsay⁵ report similar results and believe that this has an important bearing on the causation of intussusception—since it is the period when teething, with its associated gastrointestinal disturbances, commences, and also the time when breast milk begins to be supplemented with artificial feeding.

The Mechanism of Production. Eighty-eight per cent. of the acute intussusceptions treated at the Children's Hospital occurred during the first two years, and between ninety and ninety-five per cent. of all intussusceptions were either ileocolic or ileocecal. It is therefore clear that any theory of the causation of intussusception must explain two things: (1) why all types are more common in the first two years of life; and (2) why the ileocecal and ileocolic are

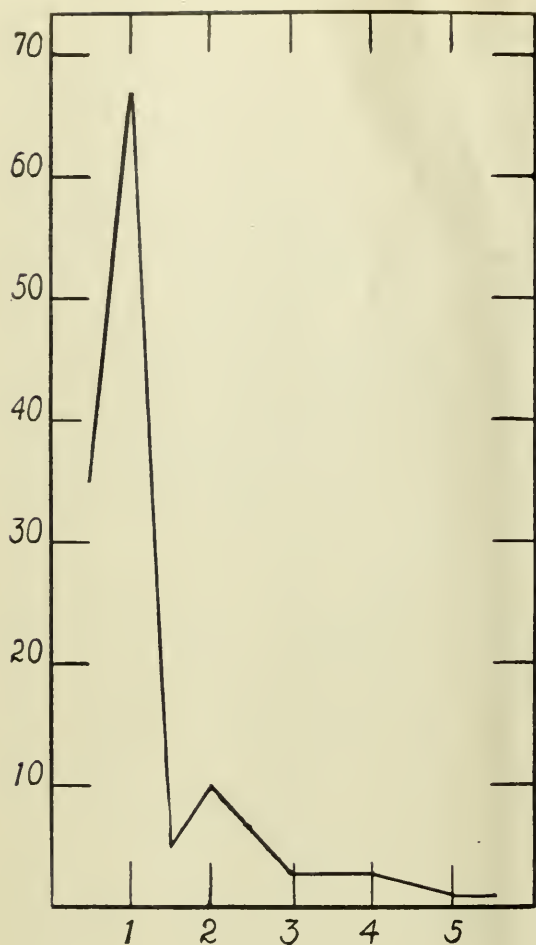


DIAGRAM No. 1.—Distribution of cases according to years. Figures on abscissa designate years. Figures on ordinate indicate the number of cases.

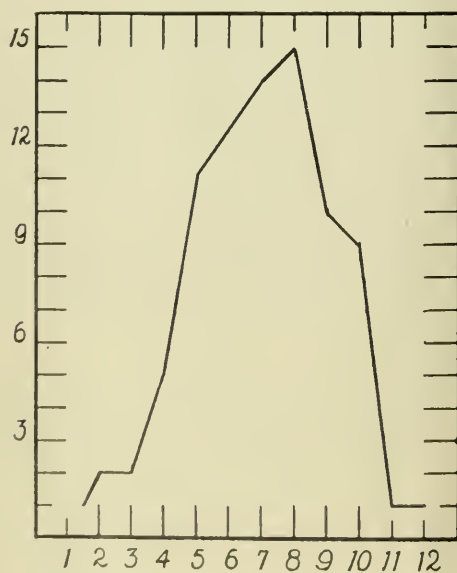


DIAGRAM No. 2.—Distribution of cases according to first 12 months. Figures on abscissa designate months. Figures on ordinate indicate number of cases.

much more common than either the enteric or colic.

Let us examine the many theories that have been advanced to account for the origin of intussusception, in light of the ability to satisfy the above conditions.

1. Mr. D'Arcy Power⁸, in his Hunterian lecture on intussusception, delivered in 1897, inclined to the opinion that a disproportion between the width of ileum and cecum, associated with increased and irregular peristaltic movements of the large intestine, was one of the main causes of intussusception. This, however, does not seem to satisfy the condition entirely, for at birth the diameter of the large intestine is practically the same as that of the ileum, and the disproportion increases with age. Again the hypothesis fails to explain why the majority of intussusceptions are ileocecal or ileocolic, for abnormal peristaltic movements are not confined chiefly to the ileocecal region.

2. Some men contend that intussusceptions result from paralytic conditions of the intestine allowing prolapse of one portion into the other. The same objection applies to this theory as to perverted peristalsis. Why should paralytic conditions of the intestine occur most commonly in the region of the ileocecal valve? It is conceivable that the ileocecal valve, projecting, as it does, into the cecum, would more readily prolapse on very slight provocation than any other section of the intestine, but the same does not apply to the ileocolic variety. There is no doubt that this theory explains some of the intussusceptions, but we must look elsewhere for explanation of many others.

3. A third group believe that the exciting cause is the presence of some congenital abnormality, such as a constriction or of some growth, such as carcinoma. This theory does not account for the prevalence during early life, for new growths of the intestine are not common in childhood.

4. Perrin and Lindsay⁵ believe that the swelling of Peyer's patches are responsible for most of the intussusceptions. They give figures showing that during the first year of life the quantity of lymphoid tissue in the lower end of the ileum and the degree of projection of the valve into the cecum are at their maximum. They feel that the great majority of intussusceptions are caused by inflammation of Peyer's patches, and this theory will certainly satisfy both the conditions borne out by our curves. They contend that the lymphoid tissue is best developed in fat babies, which agrees with the observation that a great many intussusceptions occur in fat, well-developed and healthy babies. While the theory of Perrin and Lindsay⁵ is an important contribution to the understanding of the condition it does not account for all intussusceptions, especially the enteric and colic, and

after reading the literature one comes to the conclusion that the direct cause of intussusception is still obscure in many cases.

Symptoms. Many authors have commented on the extraordinary uniformity in the symptoms of acute intussusception, and a review of the cases treated in the Children's Hospital of Boston, Mass., fully confirm this. Clubbe³ says that the very sudden onset in a previously healthy baby is a distinct peculiarity of intussusceptions. The child is seized quite suddenly with pain; screams, turns pale, vomits, and in a short time seems to recover itself only to cry again at intervals, as if in pain. Soon after the first scream the baby may pass a normal stool, but in about 98 per cent. of all cases blood will be passed by rectum in from two to twelve hours, and enemata fail to produce any fecal material. The vomiting observed in the beginning of the attack is reflex in character and usually soon subsides, though in some of the severe cases it may persist throughout. As the obstruction continues, the vomiting returns, and being, in this case, due to the intestinal obstruction, persists until the obstruction is relieved. The mass, which usually varies much in size and position, can nearly always be made out by abdominal palpation. At first the abdomen should be palpated with the fingers, but if nothing can be made out in this way, it should be examined bimanually, the fingers being placed in one loin just as in examining for a kidney. In a very rare number of cases the mass is palpable by rectum when it cannot be felt abdominally, and one should not fail to do a rectal examination when the mass is not palpable abdominally. If there is any distention or the child resists or screams, it is almost impossible to palpate the mass and under such circumstances one should not hesitate to anaesthetize the child for diagnosis. Clubbe³ recommends that anaesthesia should always be used for diagnostic purposes whenever no tumor is palpable, even though the abdomen is soft and flexible and flaccid, and the abdominal examination seems easy. The mass is not tender and is usually described as "sausage shape," though it is often more rounded than oblong, and about the size of an English walnut.

In the cases reported in this paper from the Children's Hospital, the following symptoms were present in the following order:

1. Recurring attacks of pain associated with pallor, cold sweat and reflex nausea.
2. Mucus, blood-stained mucus, and blood in movements.
3. Obstructive vomiting.
4. Toxemia due to obstruction.

It is of the utmost importance that these cases be diagnosed early, for the mortality depends directly upon the time elapsing between onset of disease and operation. If twelve to twenty-

four hours are lost before the child's symptoms increase to such an extent that the diagnosis is easy, it is too late. An extraordinarily large number of cases with a definite and clear-cut history, are missed, and so only come to the hospital when the chances of recovery are small. The physician may suspect intussusception from the history, but on examination of the child fail to palpate a mass, and being misled by the appearance of well-being of the child, sends it home with a bottle of oil or some other medicine. If one remembers that the history which is most typical is of the utmost importance and that the symptoms of shock rarely appear until twenty-four hours after the onset, mistakes in diagnosis will be less common and the mortality will be greatly reduced.

The differential diagnosis of acute intussusception does not offer many difficulties, but certain conditions may simulate it.

Henoch's purpura may and does give rise to symptoms akin to those of intussusception. Indeed, Lett⁹ records a case of Henoch's purpura complicated by the presence of two separate intussusceptions occurring at an interval of seven days. The main symptoms of Henoch's purpura are the presence of purpuric spots, swelling of joints, abdominal pain, passing of blood by rectum, and vomiting.

The presence of purpuric spots not associated with a palpable tumor should make the diagnosis relatively easy. However, very rarely the abdominal symptoms may precede those of purpura, and in such a case the differential diagnosis may be almost impossible.

Intussusception is often diagnosed appendicitis. The presence of blood in the stools and a palpable abdominal tumor should prevent such a mistake. However, since most men believe in operating for appendicitis as soon as possible this mistake does not lead to very serious consequences.

If a child is seen for the first time who is sick with a simple infectious diarrhea and is having a great deal of tenesmus, and passing nothing but blood and mucus by rectum, the possibility of acute intussusception should be considered. However, the onset and course of the disease and the absence of a tumor should make the diagnosis relatively easy. Clubbe³ reports six cases of intussusception occurring in infectious diarrhea, and intussusception should be thought of as a complication when a child suffering from infectious diarrhea suddenly grows worse, suffers more pain, vomits, and passes more blood by rectum. If, under these circumstances, a palpable tumor is found the abdomen must be opened at once. Under all circumstances, as soon as the diagnosis is made, preparation should be made at once for laparotomy and reduction of the intussusception.

Before proceeding to the details of operation, let us consider for a few moments the question of anaesthesia. Experience has shown us that ether is the best anaesthetic. The surgeon must attempt to secure a trained anaesthetist, preferably one experienced with children, for there is no question that reducing a shock to its minimum will keep the mortality low. The greatest danger seems to be in too light anaesthesia. Frequently the patient seems to be relaxed until the peritoneum is opened, when he suddenly strains and vomits, and the intestines are pushed out of the abdominal cavity. This means a delay in the operation, and unnecessary handling of the intestines, both of which increase the shock. The surgeon must impress upon the anaesthetist the importance of keeping the patient well relaxed. The child should be placed either on a shock table or upon a hot water bag, care being taken that the bag is not too hot and is properly covered. The site of the incision depends upon the position of the mass in the abdomen, but since the great majority of intussusceptions occur in the region of the ileocecal valve, a midline incision is most commonly employed. The umbilicus is made the center of the incision, which runs, not through it, but curving around it. Most operators favor a large opening—one and a half inches to two inches above and below the umbilicus. Before opening the peritoneum all forceps should be removed and the bleeding checked by fine catgut ligatures. As soon as the peritoneum is opened, the tumor should be felt for with two fingers. The apex of the intussusception having been discovered, it is steadily passed backward by pressure exerted by the finger and thumb on the containing bowel from below. The early part of the process is easy, but gradually becomes less so as the neck of the intussusception is reached. When the difficulty becomes pronounced, the intussusception should be brought into view, the incision, if necessary, being elongated for this purpose, and the final manipulation should be concluded by envelopment of the compressing fingers in a layer of gauze and the addition of gentle traction. It is at this stage that rents are most likely to occur, being the result of distention and traction. Every effort should be made to avoid tearing the intestine, for it favors infection and adhesions.

When the reduction is complete the swollen and edematous mucous membrane, particularly the segments of the ileocecal valve, may suggest the presence of a polyp, and unless the operator bears this in mind he may needlessly cut into the cecum. The exploration and reduction should be carried out as far as possible without unnecessary exposure of the intestine—a very important prognostic point—but in difficult cases it is far better to allow the

bowels to escape into wet towels rather than waste time in manipulation. As soon as the intussusception is reduced any splitting of the serous coat may be drawn together by fine catgut sutures. The damaged bowel should then be douched with warm saline and returned to the abdominal cavity.

The child should be wrapped up in blankets and rushed back to bed as soon as possible. If the child seems to be shocked it should be given salt solution by rectum while still on the operating table. For the first four or five hours following the operation, the child should be given nothing but sips of cold, boiled water. At the end of this time, if it is a breast-fed baby, put it on the breast for two minutes, and at the end of two hours, again for two minutes. If the child seems to nurse all right, then it may be given the breast every two or three hours and allowed to suck its usual time. If the child is not breast-fed, then it should be given the food in use when taken ill, but always in very small quantities at first.

Distention is a bad sign and measures must be used to prevent or relieve it. Enemata are usually best, but if they do not improve the condition, one must resort to pituitrin or calomel.

Clubbe feels that morphia is a bad drug and gives it only to those cases which are exceedingly restless and then only in small doses.

As a rule, the convalescence is rapid and uneventful. There is, however, one feature of the convalescence to which attention should be called, and this is the very high reactionary temperature which is frequently observed. The temperature, which is usually subnormal on admission, commonly rises to 101 and 102, and in some cases to 104 or even 106 after the operation. This seems to be due to the absorption of toxins eliminated from damaged intestinal wall and nearly always subsides without treatment in a day or so.

In considering the surgical treatment of intussusception nothing has been said in regard to resection of intestine, because many men believe that the mortality in such cases is so very high that it is better to take a chance on the intestine becoming viable. However, there are times when resection or anastomosis is necessary, the reduction being impossible, but every case treated in the Children's Hospital, in which resection, anastomosis or enterostomy was performed, died. Some men¹⁰ still deny that there are any successful cases on record, but Clubbe³ has collected from the literature 16 cases of successful resection, the most remarkable case being reported by Dowd¹¹ of New York, in which intussusception being irreducible, he successfully removed one-third of the colon in a five-day infant.

No mention of treatment of intussusception

by irrigation has been made because experience has shown that while such a method may cure a few cases, it is a dangerous procedure and should be abandoned entirely in favor of laparotomy.

Mortality. In the 112 cases treated at the Children's Hospital there were 44 deaths, giving a percentage death rate of 39.2. Perrin and Lindsay⁵ had a mortality of 34.7 in 400 cases, while Clubbe³ reports a mortality of 20 per cent. If you will glance at the following diagram you will see that the fact on which the mortality depends is less the skill of the operator than the length of history prior to operation.

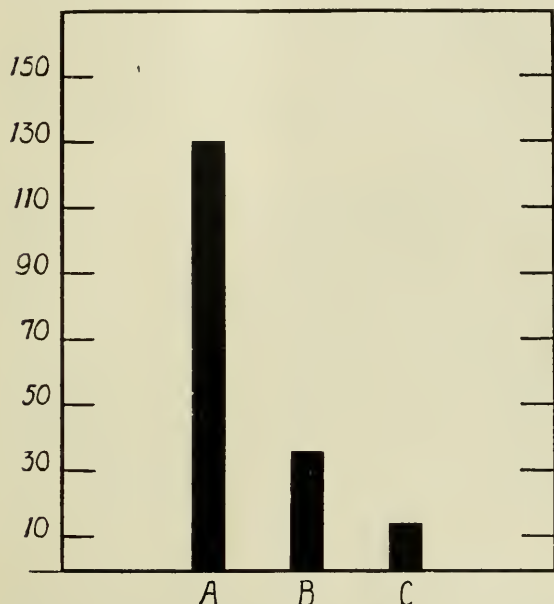


DIAGRAM No. 3.—(A) Cases dead. (B) Cases well. (C) Cases treated during first six months of 1921 with no mortality. Figures on ordinate indicate the number of hours elapsing between the onset of symptoms and operation.

It is both interesting and encouraging to find no mortality in the eight cases of intussusception treated at the Children's Hospital for the first six months of this year. The average duration of the disease prior to operation in these cases was fourteen hours. Consideration of the mortality of acute intussusception therefore shows that it lies in the hands of the practitioner to reduce the mortality.

The writer is indebted to Dr. J. S. Stone, Chief Surgeon to Children's Hospital, for the statistics on which this paper is based, and it is a pleasure to acknowledge his advice and assistance in the preparation of this paper. The writer also wishes to thank Dr. C. K. Drinker of the Harvard Medical School for his many valuable suggestions.

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RECENT EXPERIENCE WITH RADIUM IN MALIGNANT DISEASE OF THE OESOPHAGUS AND UPPER RESPIRATORY TRACT.*

By HENRY HALL FORBES, M.D., NEW YORK CITY.

MR. PRESIDENT and Members of the New England Oto-laryngological Society and Guests: Your secretary on our return trip from Europe last summer asked me to come to Boston and take part in one of your meetings. I little realized I would be a headliner, but I do assure you that I was pleased with the idea, and that I am doubly pleased that I am here tonight, although I should like very much to reverse the old quotation and say that it is better to receive than to give, for I certainly have every hope of taking back with me to New York much that is new and encouraging.

In coming here I feel some diffidence from the fact that I have so little to offer in a constructive sense. But before giving you my own conclusions, which are brief, it is quite fit and proper that an outline of the work which has been going on for the past two and a half years should be presented to you. This work covers the period of time which has been given over to the study of the results of the use of radium, especially in cancer of the larynx and oesophagus. My use of radium previously has been limited to the treatment of a comparatively few cases of papillomata of the larynx. The advent of the Department of Radium in the Postgraduate Hospital in charge of Dr. G. S. Willis seemed to me a golden opportunity for a co-operative plan of action—a combination where the experience of the radiologist and the bronchoscopist would be of mutual benefit; the one to control the type of radium, the method of application and the duration of the exposure; the other, by direct inspection, to diagnose the lesion, to make the applications and to note the progress of the case. Advantage has been taken of the x-ray department for the preliminary and corroborative diagnosis and later as a check in cases where a radium tube was used. This was in the early work through the oesophagoscope where I was not quite sure that the radium tube might not change its position following the removal of the oesophageal tube. Our one thought at the

*Read at the meeting of New England Otological and Laryngological Society at Boston, Mass., Nov. 22, 1921.

time was the possibility of giving to the patient and to radium a scientific standing. It has been most interesting and instructive, and I feel fully repaid if this has been in any way a stimulus, to those seeing the work, to continue the work or to suggest new modifications. I think it may be stated as a fact that the use of the x-ray for the direct treatment of laryngeal and oesophageal new growths is at present impracticable. (Dr. W. H. Meyer in charge of the x-ray department of our hospital.) Then it is to radium that we must turn for aid in the treatment of laryngeal cancer as an adjunct to surgery in operable cases; and to radium alone for relief and possible cure of the inoperable cancer of the larynx and all cancers of the oesophagus. The transthoracic operation for cancer of the oesophagus must be mentioned, but we all know the gravity of the operation and how rare it is for us to see a really suitable operative case—that is, one recognized in its early stages. At first all applications of the radium needles were made by the method of suspension laryngoscopy; some cases are still observed and treated by this method (recent case), but the greater number are examined and treated by direct laryngoscopy, using a Jackson tube; advantage being taken of the very comfortable position advocated by Dr. Johnson of Baltimore. The applications to the upper part of the oesophagus or hypo-larynx may be made through the oesophageal speculum, or lower in the tube by the oesophagoscope. Precision in location of the disease and the opportunity of watching the progress of the disease cannot be too strongly emphasized. "Dr. Willis feels that the application of radium, as to dosage and the question of the utilization of the Beta or Gamma rays, is still very much in the experimental stage." There also seems to be doubt as to the method of application which is best, emanations or the radium itself. (Practical advantage of emanations.) We have used the needle, availing ourselves of both the Beta and Gamma rays, and we have used the protected or screened tubes giving us the Gamma rays alone. Another operator combines the work of the internal application with an external application, getting the so-called cross-fire; the value of this latter method I must leave to the expert in radium to determine.

I will not attempt to individualize in giving you the results in the cases that have come under my care. I am sorry at the outset to state that, for some reason unknown to me, the greater number of cases have come under the class of the inoperable and a few advanced and hopeless. With the experience gained, many of our earlier cases, we feel, were decidedly not suitable for radium treatment. Not that a death has occurred from toxemia, as reported by other observers, but that cases have

simply not responded and probably death has been hastened. The laryngeal cases to date number some 24. In only one (and this a combined hemi-laryngectomy) do I feel that we have relieved the patient; I do not use the word "cured" because sufficient time has not elapsed for a possible recurrence (only two years). I do feel that I have learned that an early tracheotomy is a benefit to the patient in relieving the pain in inoperable cases and adding to his comfort. I feel that a number of abscesses that occurred following the use of the needle were not areas of infection, as first thought, but only a coincidence, as they occurred after all antiseptic precautions had been taken and have been observed by others where no radium has been used. At present the needles are limited to the non-ulcerative cases, and the tube to those in which ulceration has taken place, thus avoiding the possibility of introducing the needles through ulcerated or infected areas.

The oesophageal cases have increased in number since reading my paper at the annual meeting of the Peroral Endoscopists in Boston on June 1, 1920. Full details were given at that time of the method of treatment. The patients have invariably been received in what might be considered the advanced stage. It seems a fatality that oesophageal cancer is recognized so late. (Case at present who for six months had had difficulty in swallowing, loss of weight, cachectic and treated as cardio-spasm.) The disease unfortunately does not give symptoms in the early stages and hence is not recognized by the physician until the really grave symptoms become apparent and disease far advanced. I have noted recently the following given as the clinical signs of cancer of the oesophagus: Insidious onset; selective dysphagia to bread and meat; preservation of the appetite to an advanced stage; expectoration of small amount of blood-stained mucus; and malodorous breath. I might add localized pain and often expectoration of excessive amounts of mucus and loss of weight. How rare is it to have this complete picture. I do feel that an early gastrostomy is indicated in all cases of difficulty in swallowing and in the ulcerative stage where a physiological rest of the organ is demanded.

Under radium treatment we have added to the comfort and the morale of our patients; pain has been less or even temporarily relieved, the difficulty in swallowing has been less and many have gained weight.

Notwithstanding this apparent early beneficial effect both Dr. Willis and I agree that the results of the use of radium in cases of oesophageal cancer that have come to us have been nil and that no further cases should be treated until some other technique shall be suggested.

Under the head of personal experience I wish to mention that it was my privilege this summer to visit in London Dr. William Hill and note the method he employs, and also to have him demonstrate the use of his oesophagoscope. The general outline was the same as described. However, he uses the radium emanations properly protected in a tube. He had not buried any needles in the new growths of the oesophagus. It was pleasing to see that others were carrying out the direct methods of observation and application as already described. Dr. Hill was decidedly optimistic on the results that he was obtaining.

In conclusion, I wish to leave with you the impression that in all cases coming under my care as a laryngologist and bronchoscopist, and working in hearty co-operation with the radiologist who controlled the quality and quantity of the radium used, the results have been far from encouraging. In the pharyngeal cases of cancer we will continue the use of radium. We are hopeful in laryngeal cancer and are continuing our work. I feel that the earliest recognition of malignancy in the larynx and early operation will give the greatest benefit to the patient. Radium may be applied before the operation or later. I do feel that in radium we have a powerful therapeutic agent; that co-operation must exist between the radiologist and the specialist, both for diagnosis and for treatment. Failures of today may be successes of tomorrow, as our knowledge of the more scientific application of this element increases.

DISCUSSION OF DR. FORBES' PAPER.

DR. D. CROSBY GREENE: The ultimate results in the two groups of cases which Dr. Forbes has reported in his interesting paper are not widely different from what we have observed in the Throat Clinic at the Huntington Memorial Hospital in Boston. We have, however, seen a marked degree of palliation in some of the oesophageal cases, and a few apparent cures among the laryngeal cases.

In our clinic we use exclusively the emanations, which have the advantage over the radium element, chiefly in the greater flexibility of application. The emanations have the further advantage of being available for the seed method of treatment, which was devised by Dr. Duane, the physicist of the Huntington Hospital.

Briefly, this consists in the insertion of minute glass capsules, containing small amounts of the emanations, into the tissue of the tumor. A sufficient number of these seeds are inserted at proper intervals to subject the entire growth to radiation. The area of active radiation of seeds, containing one to three millicuries, has been shown to be about one centimeter. By inserting these seeds at intervals of about one centimeter throughout a tumor, the entire mass may be effectively radiated.

The seed method is of especial value in radiating lesions in the throat, since it permits accurate application and retention of the dose where it is desired. The instrument used for insertion is a simple trocar, varied appropriately in length and shape, according to the location of the growth to be treated. For treating the lower end of the oesophagus we use a trocar eighteen inches to twenty inches long.

When a tumor is of such an extent, and so located that it can be entirely radiated by seeds, the results are almost always favorable. We are confronted, in our clinic, by two great difficulties; first, the great majority of cases come to us with the disease so advanced that it is impossible to determine the extent of invasion; second, the location of the growth is such that it is not possible to determine its extent or reach it on all sides. For example, in cancer of the oesophagus, we can, by oesophagoscopy, locate the upper limit, but are not able to judge accurately its lower limit, or the extent of infiltration of the surrounding tissue.

The two important factors for success in treatment by radium are early recognition and accessibility. In some cases, as, for example, in cases of malignant disease of the accessory sinuses, a tumor may by surgery be rendered accessible for radiation. Dr. Mosher, Dr. Barnes, Dr. Harold Tobey and I have had favorable results in about 50 per cent. of the cases so treated.

In our experience, sarcoma as it appears in the throat is much more susceptible to improvement than carcinoma. Carcinoma of the papillary type yields better to radiation than the deeply infiltrating type. During the past two years we have been treating carcinoma of the oesophagus by radium seed insertions with the aid of oesophagoscopy. There has not been a single cure by this method, but in the majority of cases there has been definite palliation for three or four months. There have been no unfavorable effects from this treatment, excepting in cases of cancer of the upper end. In this region the reaction following the treatment has increased the dysphagia so much that I have given up using radium in this region. Some of these cases appear to be relieved, to a certain extent, by x-ray treatment, contrary to Dr. Forbes' experience.

In cancer of the larynx, we feel that in early cases surgery offers the most hope; in the later cases, surgery, supplemented by radium. We have now three cases of apparent cure out of a total of over 100 cases.

DR. HARRY A. BARNES: Mr. Chairman, and Members of the Society: In June, 1920, I reported before the Triological Society, meeting here in Boston, eight cases of malignant disease of the accessory sinuses, treated by operation followed by immediate radiation of the operative field. These cases were all operated upon during the two and one-half years previous to that time. Since then I have had nine other similar cases so treated.

Before I say anything about results, I should like briefly to describe the methods of treatment and their *raison d'être*. In the first place, I believe that all of these cases, unless they are distinctly inoperable by reason of involving inaccessible or vital parts, should be operated on first. Certain types of sarcoma, as Dr. Greene has stated, do respond wonderfully well to radiation. This is true especially of the sarcomas of lymphoid origin. Unfortunately this is not the type of sarcoma usually seen in the sinuses. And so it seems to me that with the sarcomas, as with the carcinomas, in this region at least, it is worse than futile, and a waste of very precious time, to try to get results by the use of radium alone.

The operation in these cases has been a modification of the one described by Moure; that is, two incisions in the cheek, both starting from a common point over the bridge of the nose; the first circling the lower rim of the orbit, and about a quarter inch below it; the other carried down the side of the nose near its junction with the cheek and ending just to the outer side of the ala. The flap between these incisions is turned outward, exposing the front bony wall of the antrum. This is then removed and easy access is had not only to the antrum, but also to the ethmoid, sphenoid, and

the naso-pharynx. I won't go into the technique of the evulsion of the tumor. That will suggest itself to all of you doing this type of operation, and of course has to be modified to suit the individual case. But I should like to insist on one thing, and that is that all gross tumor tissue be removed. Unless it is, the chances of a permanent cure, radiation or no radiation, are small. After the evulsion of the tumor, a triangular skin flap is cut from the cheek, leaving a large, permanent opening into the operative cavity, for the purposes of radiation and subsequent observation. The radiation is commenced immediately; that is, a tube of suitable strength, about 35 or 40 mc, screened with steel, is placed in the middle of the antral pack while the patient is still under ether, and allowed to remain there throughout convalescence. This tube should be over a centimeter from the nearest part of the operative field. Its object is not to produce a destructive effect in the gross sense, but merely to devitalize any minute fragments of tumor tissue that might be left even after the most painstaking operation. Any tumor cells set free in the neighboring lymphatics by the crushing nature of the operation might also be destroyed. These are the theoretical reasons that first led me to try out immediate radiation on these cases. We all know that radiation produces a very marked effect on gross tumor tissue. But I had never seen this destructive action quite keep pace with the growth of these tumors, whether before operation or in cases of post-operative recurrences. The results in this series of cases tend to confirm the theory.

Of the eight cases reported a year and a half ago, the statistics at that time were as follows: Two cases of sarcoma were well, and without recurrence, fourteen and twenty-six months, respectively, after operation. Of six cases of carcinoma, two were well and without evidence of recurrence or metastases seventeen and twenty-five months, respectively, after operation. The four other cases either were dead or in the last stages of exhaustion. These figures are unchanged today, except that we may add eighteen months to the period of freedom from disease in all of the four successful cases. All of these are essentially over the three-year period which we used to think signified a permanent cure. Of course, we now know that recurrence, and especially metastases, may occur after much longer periods of quiescence. So that we cannot say that any of these patients is permanently cured. I think, however, that we may regard them as successful cases.

It is too early as yet to say much about my more recent cases. Of these, five were carcinomas and four were sarcomas. Of the carcinomas, two are well after periods of six and ten months, respectively. One has an extensive recurrence. Two are dead. Of the four sarcomas, two are well after five and nine months, respectively. Two have had recurrence. Both are now being treated. I believe, by Dr. Greene at the Huntington Hospital. They are both sarcomas of the antrum.

In regard to the closure of the opening in the cheek, I believe it may be closed safely any time after the second year. The chances of a local recurrence are then very remote.

DR. HARRIS P. MOSIER: Mr. Chairman, and Members of the Society: I was asked by the Secretary to sum up the papers of the evening.

My summary is that the first speaker was gloomy about the good accomplished by radium in malignant disease of the upper jaw, larynx and oesophagus, the second was a little hopeful, and the third decidedly hopeful. To my mind the main point brought out this evening is that in malignant disease of the upper jaw, and of the accessory sinuses, radical operation followed by the use of radium apparently is giving a number of cures.

I should like now to discuss the papers individually.

In applying radium to malignant disease of the oesophagus Dr. Forbes works with cocaine anaesthesia and with small tubes. I prefer general anaesthesia and a large oesophagoscope. Dr. Forbes said that he felt like giving up treating cancer of the oesophagus until he finds a better method. I feel that Dr. Greene has shown a better method. If Dr. Forbes will use general anaesthesia, a large tube, and seeds of radium emanation, I expect that he will go back to treating these cases.

Dr. Greene's explanation of the physics of radium was enlightening and welcome. He was hopeful about the treatment of leucoplakia, and hopeful also about the radium treatment of sarcoma. He brought out the point that sarcomata can be made to disappear, but that in 20 per cent. of the cases the growth returns. He was not hopeful about the radium treatment of carcinoma of the larynx. He said nothing about the danger of the radium causing necrosis of the laryngeal cartilages. Dr. Forbes seems not to have had this complication.

Dr. Greene feels that radium seeds are of distinct value in the oesophagus. After their use, the patients have less pain. They gain in weight, and die without the necessity of having the stomach opened.

Dr. Barnes has had some very successful cases of malignant disease of the upper jaw and the accessory sinuses. It is in this type of case that I have had the most experience. During the past two years I have had nine such cases. Four are living and five are dead. One, an osteo-sarcoma of the antrum, is alive after two years; one, carcinoma of the ethmoid and antrum, is well after nineteen months; one, angio-sarcoma of the inner wall of the antrum, is well after fifteen months; and the fourth, a case of carcinoma of the ethmoid, is well after nine months.

Dr. Barnes has said that the Moure operation which we are all using in these cases is an old one. I have looked up the dates and find that it was introduced in 1903. In 1912, another Frenchman began to use the incision employed for excision of the upper jaw; that is, he cut through the lip and retracted the whole cheek. Here in Boston we have not done this, but we have added the feature of leaving the wound open and keeping it open by stents in order to watch for recurrences, and in order to treat them directly if they occur. I have always thought that a case of chondroma of the septum which Dr. Richards and I worked over separately and together for five years, until his death, was the first case in this vicinity to be left open for observation and subsequent treatment by radium. Since that case, I have been preaching the advantages of the permanent window in the cheek.

When to close the window in the cheek in the apparently cured cases is a problem which is worrying me. The woman patient who had an osteo-sarcoma of the antrum and who has remained well for two years is beseeching me to close the window. Dr. Barnes feels that he would wait at least two years. The case of the angio-sarcoma of the inner wall of the antrum I have just closed after fifteen months. The window was a small one and was closed by a flap from the cheek. I was puzzled at first how to get an epithelial lining for the under surface of the flap. A cone of epithelium had grown from the skin edge deep into the window, and attached itself to the mucous membrane of the antrum. By freeing the mouth of the cone where it joined the skin, I was able to invert the top of it and to close it with a purse-string suture.

I have always used Moure's double incision, not a single incision, as Dr. Barnes has done in some of his recent cases. The double incision gives a

triangular flap from the skin of the cheek which can be tucked into the antrum. I am hoping that when I come to close my next case the skin can be dissected up after cutting it free at the edges of the window and made to furnish an inner lining for the skin flap employed to close the window. In my three remaining cases the window is so large that I am under the impression that a flap will have to be brought from the forehead or from the chest.

New growths of the upper jaw seem to vary in malignancy. The pathologist can help us very much by settling the degree of malignancy of the different types. It seems to be a fact that tumors of the upper jaw metastasize in the neck very slowly. I should do the open operation in all cases of sarcoma of the upper jaw. Dr. Greene feels that these cases respond so well to radium that he favors closing the window and treating recurrences through the nose. I have always been sorry that I closed one such case, which finally died of recurrence in the neck. I suspect that he had his recurrence first in the antrum, and that if the window had been left it would have been possible to apply radium more effectively.

I have come to believe that tumors of the septum are more malignant and metastasize more readily than malignant disease of the accessory sinuses.

Current Literature Department.

ABSTRACTORS.

GERARDO M. BALBONI
LAURENCE D. CHAPIN
AUSTIN W. CHEEVER
ISADOR CORIAT
ERNEST M. DALAND
RICHARD S. EUSTIS
ROBERT M. GREEN
JOHN B. HAWES, 2D
JOHN S. HODGSON

CHARLES H. LAWRENCE
HERMAN A. OSGOOD
FRANCIS W. PALFREY
EDWARD H. RISLEY
WILLIAM M. SHEDDEN
GEORGE G. SMITH
JOHN B. SWIFT, JR.
WILDER TILESTON
BRYANT D. WETHERELL

FRED S. HOPKINS

RECTAL CANCER.

MANDL (*Wien. klin. Woch.*, Jan. 12, 1922) makes a preliminary statistical report on a series of 779 cases of rectal cancer from Hochenegg's second surgical university clinic at Vienna during the past 14 years. Among these, 508 radical operations, of various types, were done, and twenty-five per cent. of these cases were alive and free from recurrence after five years. [R. M. G.]

INTESTINAL TUBERCULOSIS.

LOLL (*Wien. klin. Woch.*, Jan. 19, 1922) reports briefly on the diagnosis of intestinal tuberculosis by the demonstration of occult blood and Koch's bacilli in the stools. [R. M. G.]

THE ETIOLOGY OF RICKETS.

H. S. HUTCHISON AND S. J. SHAH (*Quarterly Journal of Medicine*, Jan., 1922) investigated the influence of diet and hygiene on the production of rickets at Nasik, India. The upper and lower classes in this city resemble one another in all respects excepting diet and habits. The former have a better diet, with more fat-soluble vitamin and more meat and vegetables. In spite of this, rickets is very prevalent among them.

In the case of the lower classes, the diet is very poor in fat, meat and fresh vegetables, with an excess of starch, and yet rickets is unusual.

If diet were the chief causative factor of rickets, the poorer class should have shown the greater incidence.

The difference is explained on studying the habits of the two classes. In the upper class, in which rickets is prevalent, the infants are kept confined in close, dark rooms, and are seldom taken out during the first year, while among the lower class the women work in the fields with the men and take their children with them.

It appears evident, therefore, that at Nasik the dietary factor in the etiology of rickets sinks into insignificance in comparison with the deprivation of fresh air, sunlight and exercise.

The authors also report interesting observations on late rickets. They report seventeen cases in which rickets occurred for the first time at or soon after the period of adolescence. Sixteen of these, or 94 per cent., occurred in well-to-do persons on a good diet but confined to the house without sunlight or exercise. All the cases were in women, usually at the age of 12 or 13 years. At that age the girls are married and are obliged by custom to remain indoors most of the time; their rooms are very dark and without ventilation.

We see, therefore, in late rickets the same causes operative as in early rickets, with the exception that females only are affected in the former case.

These observations confirm the experimental work of Paton, Findlay and Watson, who found that pups brought up in the country on skim milk did not get rickets, while other members of the same litters fed on whole milk and confined to the laboratory did develop the disease.

[W. T.]

RADIOHUMERAL BURSITIS, EPICONDYLITIS, EPICONDYALGIA (TENNIS ELBOW).

OSGOOD, R. B. (*Archives of Surgery*, March, 1922). —Osgood says:

1. Tennis elbow, epicondylitis, or epicondylalgia, presents a fairly typical syndrome, occurring in connection with certain sports, most commonly with tennis, and in various occupations and in lead poisoning. The right arm is more commonly affected than the left. This condition occurs more often in men than in women, but it is typical in both sexes. One case is reported in a boy of 14.

2. It seems to be most frequently caused by strenuous or repeated extension of the arm in a flexed position, meeting a sudden opposition to further extension, as in a backhand stroke in tennis, fencing or in boxing (Vulliet), or by striking blows with a hammer with the arm in a cramped position, by the punching and lasting of a shoemaker, by the slinging of mortar by the mason. It is possible that an infection or toxin may be the etiologic factor in certain cases.

3. The essential pathology is believed to be an inflammatory reaction in a commonly existing bursa, varying in size, and located beneath the conjoined tendon of the extensor muscles between this tendon and the tip of the epicondyle, the origin of the supinator radii brevis muscle, and the radiohumeral joint. Somewhat similar symptoms occasionally referred to the mesial condylar region may be explained by similar areolar tissue reactions beneath the common tendon of the flexor muscles. No constant bursa has been found in this region but adventitious ones may well occur.

4. Heretofore, the only method of treatment which has been generally successful has been complete immobilization for six weeks. Untreated, the discomfort may persist indefinitely; but it is usually self-limited, in from three months to a year.

The operation of splitting the conjoined tendon, opening the bursa, evacuating the contents, and curetting its walls is not likely to do harm; and in two cases it has been followed by a rapid subsidence of symptoms and free use of the arm.

5. It is possible that the so-called epicondylitis may be due to a lesion of more than one structure, as in the operative findings of Franke and Goedel; but if in the typical lesion, the bursa described above is commonly found, and if its affection, as in our cases, should be found to be fairly constant, the name radiohumeral bursitis may be considered more descriptive than the term epicondylitis or tennis elbow.

[E. H. R.]

NEURO-FIBRO-MYXOMA TREATED BY CONSERVATIVE OPERATION.

GATCH, W. D., AND RITCHEY, J. O. (*Annals of Surgery*, Feb., 1922).—These authors write as follows:

Various authors believe that benign fibrous or fibro-myxomatous tumors of nerve sheaths may undergo a malignant degeneration into sarcoma. It would seem to the writers of this article that the safest criteria of judging at the operating table, whether a single tumor of a nerve is malignant or not, are the following:

1. The duration of the tumor. If the tumor is of long duration, it is of course not likely to be malignant. Case I shows that even a sudden and rapid increase in size of a tumor which has been quiescent for years is not proof positive of malignancy.

2. The presence or absence of motor or sensory paralysis. This is a most valuable point. A nerve will withstand really a remarkable amount of stretching or pulling from a benign growth, but is quickly destroyed by the infiltration of its substance by a sarcoma. In both of our cases pain and the various other sensory disturbances were the only symptoms produced by the tumors.

3. The gross appearance of the growth when exposed. Case II shows that it may be possible to remove a pure myxoma of the sheath by simply wiping it away. The encapsulation of the fibrous portion of the tumor and the possibility of shelling the same from the centre of a nerve trunk would seem to be strong evidence of a benign growth, as is the lack of encapsulation with fixation of the growth to the contiguous structures strong evidence for sarcoma.

4. Our experience with these cases leads us to regard the microscopic study of the tumor, especially if such study is relied upon to the exclusion of other evidence, as apt to be misleading.

If after consideration of all evidence available the surgeon is still in doubt as to the nature of the growth, it is perhaps wisest to be conservative, especially if the growth is in a situation where its complete removal is difficult.

[E. H. R.]

RUPTURED SPLEEN, WITH REPORT OF THREE CASES.

METCALFE, LT.-COL. R. F., AND FLETCHER, CAPT. L. Z. (*Annals of Surgery*, Feb., 1922).—These authors write as follows:

1. That the healthy spleen may rupture spontaneously or by comparatively slight trauma.

2. That the symptoms at first may be slight,—some dizziness, nausea or vomiting with restlessness and indefinite abdominal pains; or we may have immediate symptoms of severe intra-abdominal hemorrhage, depending on whether the capsule of the spleen

has ruptured or remains intact, forming a large subcapsular haematoma.

3. That with our three cases, three of Willis', one of Fauntleroy's and one of Connor and Downes', an agonizing pain was experienced in the left shoulder, and we believe that if evidence of this radiating pain from the splenic region to the left shoulder can be elicited in any indefinite abdominal case with evidence of hemorrhage, that one may safely conclude that he has a ruptured or lacerated spleen to deal with.

4. That in view of the high mortality of unoperated cases, we believe that the only safe treatment is immediate splenectomy.

[E. H. R.]

CYSTIC DILATATION OF THE COMMON BILE DUCT.

REEL, P. J., AND BURRELL, N. E. (*Annals of Surgery*, Feb., 1922).—These authors write as follows:

By the way of summary it is of interest to note that during the past century, with its phenomenal development of abdominal surgery, there has been no apparent increase in the percentage of the occurrence of this condition. The preoperative diagnosis has never been recorded, due, no doubt, to its rare incidence. The striking clinical feature present in practically each case reported has been intermittent jaundice in the child or young adult, usually associated with some form of palpable tumor mass in the upper right quadrant of the abdomen. It would seem that cystic dilatation of the bile passages should be considered in the differential diagnosis when the above-mentioned clinical symptoms are encountered.

The case serving as a basis for this discussion is a female, aged fifty-six. Her symptoms, however, were noticed at the age of twenty. Since this time her main discomfort having been gastric disturbance, intermittent jaundice, pain, and tumor formation. So far as we have been able to determine, this is the oldest patient reported in the literature with this condition. The cyst, containing approximately 8 litres, is in all probability the largest on record. The patient at the present time (September 1, 1921) is enjoying good health and is able to attend to her household duties, the wound having healed.

[E. H. R.]

THE RESULTS OF HIGH LIGATION OF THE CYSTIC DUCT IN CHOLECYSTECTOMY.

HARTMAN, F. L., SMYTH, C. M., JR., AND WOOD, J. K. W. (*Annals of Surgery*, Feb., 1922).—These authors write as follows:

1. Where a cystic duct stump is left, it usually dilates to form a pseudo gall-bladder; hence we may get a recurrence of the symptoms after a cholecystectomy.

2. Where the cystic duct is ligated flush with the common duct, there is general dilation of all ducts, indicating that there is pressure in the biliary system.

3. The gall-bladder is not essential to life, but it seems to have a very definite function of storing bile and acting as a tension bulb to regulate pressure in the biliary system.

4. Nature endeavors to restore the normal condition in the biliary system after the removal of the gall-bladder by the ducts, including the cystic duct stump, undergoing a dilation and enlarging. It is an indication that nature rebels against man's attempt to improve on her, hence the gall-bladder must have some definite function.

[E. H. R.]

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RECENT DISCOVERIES CONCERNING THE ELIMINATION OF URINE.

FOR half a century, more or less, opinion as to the nature of kidney function has vacillated between two extremes, at one time holding with Ludwig that the elimination of urine was due to filtration, then shifting to the Heidenhain theory of secretion. Ludwig maintained that increase of blood pressure was followed by greater urinary output, and attributed the diuresis to increased *vis a tergo*; Heidenhain and his followers pointed out that the diuresis might be due to backing up of blood in the renal capillaries, thereby keeping more blood in contact with the epithelial cells, which, according to the Heidenhain theory, separated urine from the blood by a process of active secretion. The discovery of Heidenhain that a blue dye injected into an animal just before death was found to be present in the cells of the convoluted tubules, but not in the glomeruli, was thought to be proof of the secretion theory.

Both theories have been reviewed by A. R. Cushny in his excellent monograph on "The Secretion of the Urine." In spite of Heidenhain's experiment with the blue dye, Cushny concludes that the weight of evidence favors the filtration theory of Ludwig.

Within the past few months work has appeared which seems to decide, in a manner

that must delight the soul of the physiologist, this long-fought debate. A. N. Richards, Professor of Pharmacology at the University of Pennsylvania, and O. H. Plant* seem to have proved conclusively that the kidney works by filtration, not by secretion. Their work is based upon animal experiments in which the amount of blood driven through the kidney in a given period of time is a known quantity alterable at will. This was accomplished by connecting the carotid artery of a rabbit with a graduated syringe, by which the blood was drawn from the carotid and reinjected into the abdominal aorta, the aorta having been ligated above the renal artery and below the point of anastomosis with the pump. The blood thus driven through the kidney returned to the general circulation through the renal vein. With a known quantity of blood passing into the kidney, the blood pressure within that organ was altered by stimulation of the splanchnic nerve, by the injection of adrenalin and of pituitrin, and by partial occlusion of the renal vein. It was found that the changes in the output of urine varied as did the renal blood pressure. In other words, the blood pressure within the kidney was found to be the cause of the elimination of urine. If the kidney function were due to the secretory activity of the epithelium, blood mass and not blood pressure would be the determining factor. By showing that the output of urine varies, while the blood mass remains the same, Richards and Plant have proved the filtration theory to be correct.

The behavior of the kidney under the influence of splanchnic stimulation and of certain drugs, such as adrenalin, has led these investigators to attribute the consequent diuresis to a contraction of the arterioles going to and from the glomeruli, a contraction which affects the calibre of the efferent vessel more than that of the afferent one because the former is already of smaller diameter. As a result, the blood pressure within the capillaries of the glomeruli is increased.

This phenomenon has even been observed by Richards and Schmidt in the glomerulus of the frog's kidney. Under adrenalin stimulation, the capillaries have been seen to dilate and to fill with corpuscles. It has been further noted that under conditions of moderate blood flow only a fraction of the glomeruli receive blood. As the renal blood pressure increases, more glomeruli become filled and diuresis results.

This fascinating and scientifically beautiful research is epochal, so far as study of the kidney is concerned. It opens the door to a thorough understanding of renal function and to further discoveries of the greatest importance.

*Richards, A. N., and Plant, O. H.: *American Journal of Physiology*, vol. lix, Feb. 1, 1922, pp. 111-203.

A REPLY TO DOCTORS BULKLEY AND LITTLE.

THE BOSTON MEDICAL AND SURGICAL JOURNAL of January 26, 1922, contained a review of Dr. Bulkley's book on "Cancer and Its Non-Surgical Treatment." The reviewer commented favorably on Dr. Bulkley's effort to find a cause for cancer, and upon the excellent supportive treatment given by him to his patients. He condemned the author's opinion that his method is more efficient than surgery in the treatment of such cancers as can be removed surgically.

Recent issues of THE JOURNAL (April 27, 1922, and May 11, 1922) have contained letters from Dr. Bulkley and from Dr. S. W. Little, attacking the above-mentioned review. Analysis of these letters shows that the writers have two fundamental objections to the review. First, it is anonymous. Second, it represents the narrow and prejudiced viewpoint of "the relatively few research and surgical autocrats and oligarchs" who "through wilful ignorance" ignore the truth as set forth by Dr. Bulkley.

It is not the wish of THE JOURNAL to enter into acrimonious debate, particularly with so sincere and earnest a worker as the author of the book in question. Nevertheless, the insinuation made by these two correspondents that THE JOURNAL's reviewers are unwilling to stand by their guns deserves rebuke. For years it has been the custom for book reviews in this periodical to appear unsigned. In this instance THE JOURNAL is willing to depart from the habit of years, and to state that the Assistant Editor, Dr. George Gilbert Smith, wrote the review of Dr. Bulkley's book. Dr. Smith is on the staff of the Huntington Hospital for Cancer Research, and it is fair to assume that his views upon the book would represent the opinion of the majority of those who are making an intensive study of cancer.

The second objection to the review cannot be answered without entering into a discussion of the nature of cancer. Into this field of theory THE JOURNAL refuses to go. It candidly admits that it prefers to accept the opinions of such scientists as Duane, Bovie, and Francis Carter Wood, to mention a few nearest home, rather than to accept the assertion, unsupported by demonstrable data or by sound logic, of the two gentlemen whose correspondence called forth these paragraphs.

"None of my proofs," says Dr. Bulkley in his letter, "have ever been refuted or scientifically disputed." Without one scrap of experimental evidence to support his thesis that cancer is due to changes in the blood and can be cured by alterations in diet and mode of living which will neutralize those changes, Dr. Bulkley asks the individual stricken with cancer to

neglect the opportunities offered by surgery and to trust his life to a theory built upon speculation. Among the 91 cases reported in more or less detail in his book, there is not one case of cancer, the nature of which was proved by microscopic examination of tissues, in which anything more than temporary improvement was obtained, except by the use of caustic applications in superficial growths, or by the use of radium, x-ray or surgery in deeper growths. Even the temporary improvement may be attributed to the local cleanliness which Dr. Bulkley carries out so carefully.

If Dr. Bulkley would apply the scrutiny of ordinary, scientific investigation to his results, he might be led to restate his thesis as follows: The local growth should be destroyed by chemical necrosis or by radiation or occasionally be removed by the knife. Meanwhile the patient should be supported by a simple diet low in protein, and elimination should be encouraged by diuresis and catharsis. This would be a fair statement of what his method attempts to do, and would show it to be a method of therapy based upon common sense. As it is, he attributes miraculous qualities to the constitutional aspect of his treatment, thereby confusing his medical readers and possibly seriously misleading such laymen as read his book. Meanwhile, he minimizes the really important factor, which is the local destruction of the growth.

DEDICATION OF THE JOHN COLLINS WARREN LABORATORY OF THE HARVARD CANCER COMMISSION.

ON Monday afternoon, May 15, the new wing of the Huntington Memorial Hospital, in the Harvard Medical School group of buildings, was dedicated and opened for inspection.

Dr. D. L. Edsall, dean of the Medical School, introduced Dr. Francis Carter Wood of New York, director of the Crocker Foundation for Cancer Research. Dr. Wood spoke of the development of scientific research; he pointed out that nowadays elaborate equipment is necessary in order to work out the finer details of past discoveries. The new building contains a laboratory of bio-physics. By means of this comparatively new science, the Harvard Cancer Commission is attacking the cancer problem from a new direction. It contains also other laboratories—a fact which makes for coöperation. A university should be surrounded by a number of institutes like this.

Dr. Wood believes that the leaders of thought in our universities are hampered by too much undergraduate teaching. They should be left free to work along new lines. Apparently unimportant discoveries may prove to be of the greatest practical value.

The work of the Harvard Cancer Commission has been characterized by its sanity and solidity; with the new equipment, much may be expected.

In regard to the treatment of cancer, Dr. Wood considers surgery the best method at present, although he realizes that it is a defective method in principle. Cancer consists of a group of runaway cells in the body. Dr. Wood hopes to see the problem solved by the use of x-ray and radium; these methods are not ideal; it would be even better if some drug could be discovered which would be a specific.

Study of the nature of cancer has been greatly aided by our ability to grow cancer in animals, a step in advance which has been developed in the Crocker Laboratory in this country, and in Japan and Denmark. The problem is to find some essential difference between cancer cells and normal cells; Dr. Wood and his colleagues have been working with this purpose, but the farther they get, the less differences they find.

Cancer is the last great unanswered question in medicine. Our present program should be to back up surgery, secure cases early, and study the effects of radium and x-ray.

At the conclusion of Dr. Wood's address, Dr. Henry P. Walcott, chairman of the Harvard Cancer Commission, spoke of the unremitting labors of Dr. John Collins Warren, to whose efforts, in large measure, the new building was due. He announced that the President and Fellows of Harvard College had voted that the laboratory shall forever bear the name of John Collins Warren.

The new building was then thrown open for inspection. Visitors were shown the new high voltage x-ray machine which was developed in this country by Professor William Duane and has been in operation at the Jefferson Laboratory for over three years. The completion of the new building has given the necessary opportunity for its application to clinical problems.

Dr. Bovie, assistant professor of bio-physics, had arranged a number of demonstrations in his laboratory, relating to the work done in that department.

REPORT OF THE BOSTON TUBERCULOSIS ASSOCIATION.

THE eighteenth annual report of this active and efficient organization sets forth the objects of the association as follows:

To study and understand the problems in regard to tuberculosis in the city of Boston, and to endeavor to meet such problems. To give practical help in some way to those residents of the city suffering from the disease.

To coöperate with municipal and voluntary

health and social organizations in combating the tuberculosis problem.

To give information both to the general public and to the medical profession concerning the latest and best methods of diagnosing and treating consumptives and handling the general tuberculosis situation.

To establish and to manage a Preventorium in the city of Boston, where children who have been exposed to tuberculosis and who are the future candidates for this disease may become so built up physically and so trained in the rules of hygiene that they will ward off tuberculosis in the future.

In pursuit of these objects, the association has made a study of the situation as regards the diagnosis, treatment and disposition of tuberculous patients in the out-patient departments of Boston hospitals. The committee in charge of this investigation recommends better reporting of cases of non-pulmonary tuberculosis; closer follow-up work on patients with a diagnosis of "phthisis?," the establishment of contact clinics in outlying sections of the city; and a more general use of the "Confidential Exchange," in which cases diagnosed as tuberculous, or suspected of being so, are registered by the Social Service Department. Investigation has shown that of the 963 patients registered at the Exchange, 372 were reported by more than one clinic.

The Educational Committee reports the holding of a tuberculosis institute for physicians, attended by approximately 400; a modern health crusade instituted in certain Boston schools; the establishment of a Lecture Bureau; the preparation and distribution to Boston physicians of a list of hospitals, sanatoria and out-patient departments; and the formation of a publicity department.

The report also contains brief addresses on "The Place of the Preventorium in the Anti-tuberculosis Campaign," by Dr. J. H. Elliott and Dr. Henry D. Chadwick.

A WARNING IN REGARD TO POST-GRADUATE STUDY IN VIENNA.

UNDER the date of March 24, 1922, the American Medical Association of Vienna sends out a circular letter describing the conditions which exist in regard to post-graduate medical study in Vienna. This letter states that the Association, which formerly sponsored a number of courses offered in Vienna and regulated the fees charged for these courses, has lately been unable to secure the coöperation of the lecturers; the latter have discriminated in the matter of fees against Americans, charging them ten times as much as they have charged Austrian physicians, and more than they have charged physicians of Swiss, Dutch, Italian or French nationality.

The policy of the Viennese lecturers would appear to be extremely short-sighted—a killing of the goose of golden egg fame. Before the war, from three to four hundred American physicians came to Vienna every year for post-graduate study. It is unlikely that many will go if they know the sort of reception they will find.

The desire for gain and the finer emotions never have been very intimate. Perhaps we have no reason to expect that the medical profession of Vienna would remember the contributions of food and clothing made by Americans to the children of their late foes. Some evidence of gratitude, however, would have gone far to hasten the renewal of friendly relations between the medical men of the two countries.

REPORT OF THE CANCER COMMISSION OF HARVARD UNIVERSITY.

THE ninth annual report of the Cancer Commission of Harvard University is at hand. The report of the Director, Dr. Robert B. Greenough, reviews the work of the Commission since its inception in 1899. Its earlier activities were directed chiefly towards a scrutiny of the various theories of cancer causation, and resulted in rejection of the parasitic theories. A study of cancer in mice was carried on at the same time.

In 1912 the Huntington Hospital was opened, and a small quantity of radium was secured. The addition of a much larger amount in 1916 increased the supply of radium to an amount valued at about \$100,000. Since that time the clinical activities of the hospital have increased steadily. In 1920-21, 647 operations were performed; 1420 new patients were examined, of whom 924 had carcinoma, 34 had sarcoma, and 50 had other malignant conditions.

The laboratory departments of the Cancer Commission have also been productive. Professor Duane has been working upon a new x-ray machine which will produce rays resembling the gamma rays of radium. A new laboratory building, in which the x-ray will be installed, has been erected, closely connected with the hospital. There will also be laboratories for chemical, bio-physical and pathological investigations.

CINEMATOGRAPHIC INSTRUCTION.

On April 28, 1922, the Society for Cinematographic Instruction held an inaugural meeting in New York. About one thousand physicians and dentists attended. Addresses were given by Dr. George D. Stewart, president of the

New York Academy of Medicine; Dr. Samuel A. Brown, dean of Bellevue Hospital Medical College; Dr. Otto Lurgui, editor of *Dental Items*, and Dr. James S. Edlin, president of the society. Several demonstrations of the process were given. The functions of the society are set forth in the following statement:

"The supreme purpose for which the society was founded was to raise the science of cinematography, in its application to medicine and allied subjects, entirely out of the field of commercialism. In this manner it is possible to make this valuable adjunct to teaching immediately available to the individual physician, surgeon and dentist as well as to institutions which have recognized and taken into account this new factor of actual visualization in connection with the teaching of medicine and allied subjects. It is not intended to supersede but to supplement the present courses of instruction, and in conducting this work through the society it is brought, from a standpoint of cost, within the reach of all. A member in any part of the country will have the resources of the society at his command to present any new idea, invention or technique to the profession at large in the most vivid and rapid manner possible, and, in like manner, he may witness the work of the ablest men in the profession both in this country and abroad."

RURAL HEALTH AND MEDICAL SERVICE.

A LETTER over the names of Eugene R. Kelley, State Commissioner of Health; Mrs. William Lowell Putnam; Dr. Enos H. Bigelow, Chairman of Public Health Committee of the Massachusetts Medical Society; Herbert C. Parsons, Deputy Commissioner of Probation; Arthur W. Gilbert, D.Ph., State Commissioner of Agriculture, and Dr. Paul W. Goldsbury, Secretary of the Executive Committee, appeared in the *Springfield Republican* under date of May 11, 1922, relating to the subject of "Rural Health Betterment." According to the letter, this is a voluntary organization which has been studying the problems indicated by the title of the article. After referring to well-known facts relating to insufficient medical service in rural sections the suggestions are made that more points of contact between medical leaders and isolated practitioners should be afforded and broader policies of graduate and clinical instruction should be brought about through construction and utilization of hospitals.

The argument is advanced that more physicians should have the advantages incident to membership on hospital staffs, and the routine

examination of school children is urged. The adoption of these suggestions would, it is claimed, result in better appreciation of the doctors' services to the community and more satisfactory opportunities for practitioners.

The communication suggests that contributions amounting to five thousand dollars would inaugurate activities which in time would bring about the desired results.

Although the standing of the members of this committee is a guarantee of the quality of work to be done under their direction, it may be difficult to secure responses before definite plans are made public. It is beyond question that the opportunity for valuable work exists, but with the multitude of appeals now being made for contributions, people who are able to finance new projects are inclined to wait until the details are worked out.

However, money given would be wisely expended.

NOTES FROM THE WASHINGTON MEETINGS BY DR. CHARLES F. PAINTER.

THE introductory paper by Dr. E. V. McCollum of Johns Hopkins dealt with the general problem of diet as modern Americans view it, pointing out the fact that in the use of such a large amount of white-flour bread and prepared cereals, especially those which are cooked, and the lack of the general use of milk, roots and green vegetables such as are used for the making of salads, our dietary is lacking in a certain balance which is undoubtedly disadvantageous.

The next two papers, by Dr. Mendel and Dr. Sherman, reviewed the experimental work which is being done in the laboratories at Yale and Brown universities in an endeavor to discover the sources and distribution of those elements in food, known respectively as Vitamin B and Vitamin C, in which so many of our diets are lacking and the presence of which would do much to forestall the development of diseases which are properly described as nutritional and which flourish where these elements are lacking in the food supply.

The fourth paper was by Dr. Paul G. Shipley of Johns Hopkins and was interesting in that it pointed out from an experimental viewpoint the way in which rickets may be developed in animals. The rat was the animal upon which interesting investigations have been carried out, and the results of the experimentation show that rickets, at least in the rat—and there is a good deal of evidence that the same thing holds true in the human—is due to a disturbance in the ratio of phosphorus and calcium in the dietary. That is, rickets may be produced in the rat when the amount

of calcium in the food is reduced below the normal content, and it may also be produced when phosphorus is reduced below the normal content, provided in the first case that phosphorus is present in the normal amount, and by the same token in the second instance if the calcium is present in the normal amount; the whole point being that the ratio between the two elements must be disturbed. If the ratio is maintained the same, even though the quantity of either one is present in abnormal amounts, there will be no rickets. He also brought forth evidence to show that sunlight and certain artificial lights were capable of influencing the recovery from rachitic conditions when the experimental animal was subjected to their influence.

The paper of Dr. Joseph Goldberger of the United States Public Health Service was concerned with the question of diet in the treatment of pellagra, there being clinical and experimental evidence to the effect that pellagra is a nutritional disease and is probably dependent upon the absence of a fourth vitamin, known as Vitamin D.

The last paper was by Dr. L. Emmett Holt of New York and was a review of the experimental findings in relation to these vitamin studies in their practical application to pediatric practice in particular. He indicated a sympathetic interest in the results of experimentation so far carried out. He deprecated the commercial exploitation of the various vitamins as tending to carry the public too far ahead of the scientifically established value of vitamins in dealing with practical matters, but seemed to be of the opinion that it was a very suggestive field in which to work and that already much that was valuable and conclusive had been brought out.

In the Orthopedic Section, I was not present the first day and so heard none of the papers allotted to the session on Monday, May 1.

In the second day's session, on Tuesday, May 2, the two papers that stood out conspicuously were those of Dr. J. M. T. Finney on "Spasmodic Torticollis" and by Dr. Murk Jansen of Holland on "Biological Laws in Orthopaedics."

Finney's paper was a report of his experience, extending now over a period of 20 years and including a series of 27 cases of spasmodic torticollis operated upon by a radical method. The method consists in resection of the upper two posterior cervical nerve roots, always on the side toward which the head deviates, and sometimes upon both sides, together with the occipital major and minor nerves. In his earlier work he resorted to muscle resection as well as nerve resection, but in the later cases he has omitted the muscle resection. He was able to

present a series of results which had been of sufficient duration since operation to justify one in the belief that something approximating a cure had been secured in these cases, far in excess of anything that had been obtained by any other method heretofore employed. The paper included an exhaustive study of the methods that had been used by various operators from the very first recorded case down to the present time, together with a dissection on the cadaver which made very clear the steps of the operation which he has employed. This operation is a refinement of the procedure originally devised by Dr. W. W. Keen of Philadelphia some years ago.

Dr. Jansen's paper was a study of the laws of growth in the skeletal development, particularly as they may be influenced by prenatal and postnatal influences tending to retard the processes of growth, and showing how the operation of these laws tends to explain many of the deformities which are the subject of a great deal of the practice of orthopædic surgeons.

There was also a paper of some interest by Dr. George Barrie of New York, on the subject of "Hemorrhagic Osteomyelitis," which was an attempt to show that the so-called giant cell sarcoma was not a neoplasm at all, but was a type of infection to which hemorrhagic osteomyelitis more closely expresses the pathological condition than does giant cell sarcoma. He bases his claim for this viewpoint upon his belief that the giant cells so largely predominating in the cellular elements observed in tissue removed from cavities in bone afflicted by these disturbances were scavenger giant cells, and not true sarcomatous cells. The paper was not discussed by anyone with a pathological viewpoint and the impression left was that a "Scotch verdict" would have to be rendered upon Dr. Barrie's claims.

On Wednesday, the most significant papers presented were Dr. J. J. Nutt's of New York upon "Further Observations on the Operation of Intraperineural Neurotomy in Spastic Conditions." The introduction of this operation was an attempt to find something that would be less radical and therefore attended by a lesser mortality, at the same time that it accomplished the purposes of some of the more extensive operations upon the spinal nerve roots in dealing with spasticity. A considerable number of cases had been operated upon by this method at the New York State Orthopædic Hospital with a notable improvement in the functioning capacity of the patients.

A second paper by Dr. Murk Jansen upon "Coxa Plana and Its Causation"—discussion by Dr. D. B. Phemister of Chicago and Dr. Freiberg of Cincinnati—was productive of the greatest amount of interest. The author's con-

tention was that coxa plana, or, as it is perhaps more frequently called, Legg-Perthe's disease, was the result in many cases of congenital abduction of the innominate bone, or ilium varum, resulting in the production of a shallow acetabulum. In consequence of this anatomic disarrangement, the biologic laws whose influence he had called attention to in the paper of the previous day had appeared to produce the effects which are recognized in the deformity as clinically observed.

The third paper of significance was a report of the Commission on Stabilizing Operations upon the Foot. This is a report of a commission appointed by the Orthopædic Association to study the comparative value of the various methods of securing a stable foot in patients, the musculature of whose legs has been so seriously impaired by infantile paralysis that the functioning value of the foot has been seriously interfered with. The Commission had studied in the various clinics of the country the methods employed by many operators and had concluded that the two best procedures were the astragalectomy of Whitman and an arthrodesis of the ankle joint performed by denuding the cartilage from the superior and inferior surfaces of the astragalus together with the cartilage between the astragalus and the scaphoid and also from those portions of the external and internal malleoli normally in contact with the sides of the astragalus. This was particularly applicable to those cases where there was toe drop. The calcaneal deformities were more suitable for the astragalectomy.

NEWS ITEMS.

THE WORCESTER DISTRICT MEDICAL SOCIETY.—At the annual meeting of the Worcester District Medical Society, a report of which will be found in the previous issue, much appreciation was expressed by the members for the splendid dinner that was served and for the entertainment provided after the dinner. Many of the fellows visited the manufacturing establishments in the vicinity, and a vote of thanks was given the Clinton members of the society for their hospitality. At the business meeting Dr. Homer Gage spoke of the need of a building for the medical library and suggested that other towns of the size of Worcester had buildings to house their libraries and for medical meetings. He said that there had recently come upon the market a house which was very well equipped for the use of the medical society and which was sold at a moderate price. On motion of Dr. Ellison of Spencer it was voted that the president appoint a committee of five to consider the question of a per-

manent home for the society. The committee will be announced later.

The Worcester School Board gave a hearing to the Board of Health, May 5, in which the chairman of the board, Dr. Edward H. Trowbridge, spoke in favor of its petition for the application of the Schick test to the Worcester school children. He stated that in a communication from the Department of Health at Dallas, Texas, it was denied that any deaths had resulted from the Schick test in Dallas. He called upon Dr. White of the State Board of Health to describe the test and methods of making the material for the test. Dr. White was questioned very minutely by members of the board and opponents of the test in the audience. Many physicians were present and all spoke in favor of the test. A few opponents were present and voiced their objections, which seemed to be based upon a misunderstanding of the test and inaccurate knowledge of the results. The board will vote on the petition of the Health Board at the next meeting.

The grand jury has returned an indictment against Dr. Horace G. MacKerrow of Worcester, a colored physician, in which he is charged with misconduct. The complainant, Mrs. Lee Shee of Worcester, has sued him for damages of \$20,000 in the civil court.

THE annual meeting of the Norfolk District Medical Society was held according to schedule as published in the issue of May 4, and the list of officers presented by the nominating committee was elected without change.

ON Friday, May 12, Dr. Sarah Jordan was the speaker at the staff luncheon of the Worcester State Hospital. The topic was "Basal Metabolism," and a discussion followed the reading of her paper. It is planned to have the basal metabolism tests applied to a group of mental cases in this hospital.

WILLIAM A. BRYAN, *Superintendent.*

COMPLAINT AGAINST DR. PHILLIP A. E. SHEPPARD.—On May 10, 1922, the Board of Registration in Medicine conducted a hearing on a complaint alleging unprofessional conduct by Phillip A. E. Sheppard in treating a patient.

It has been alleged that Dr. Sheppard has been associated with Dr. Abrams of San Francisco through the medium of the United States mails for the purpose of securing opinions of ailments. *The Journal of the American Medical Association* has published accounts of the methods of Dr. Abrams.

The hearing before the Board of Registration in Medicine has been adjourned to May 31, 1922.

Messrs. Nason and Proctor are attorneys for Sheppard.

THE ITALIAN MEDICAL SOCIETY.—This active society has a membership of 30 Italian physicians and is presided over by Dr. Gaetano Praino.

Two women physicians have recently been admitted to membership: Dr. Ilia Galliani, a graduate of Tufts Medical School, and Dr. Rose Yannini, a graduate of Middlesex College of Medicine and Surgery.

The last meeting of the society was held at the Copley-Plaza. At this time Dr. Antonio Satler of New York, who was physician to Enrico Caruso, read a paper. There are about 40 Italian physicians in Massachusetts. Women physicians of Italian birth might provide a great service in obstetric work, thereby developing a substitute for the objectionable midwives.

THE OPINION OF THE ATTORNEY-GENERAL.—At the suggestion of the Hon. B. Loring Young and with the endorsement of President John W. Bartol, the opinion of the Attorney-General is published in this issue because the subject is of great importance from a medical as well as political point of view.

DEATH RATE IN BOSTON.—During the week ending May 13, 1922, the number of deaths reported was 205, against 185 last year, with a rate of 13.99. There were 25 deaths under one year of age, against 39 last year.

The number of cases of principal reportable diseases were: Diphtheria, 61; scarlet fever, 49; measles, 207; whooping cough, 10; typhoid fever, 2; tuberculosis, 28. Included in the above were the following cases of non-residents: Diphtheria, 1; scarlet fever, 6; measles, 2; tuberculosis, 5. Total deaths from these diseases were: Diphtheria, 3; whooping cough, 1; tuberculosis, 9. Included in the above were the following non-residents: Diphtheria, 2; tuberculosis, 1.

Miscellany.

OPINION OF THE ATTORNEY-GENERAL OF MASSACHUSETTS ON THE CONSTITUTIONALITY OF THE SHEPPARD-TOWNER BILL, HOUSE 1660.

To the Honorable Senate and House of Representatives, State House.

GENTLEMEN:—You have requested my opinion on the following questions:

"(1) Is the act of Congress, approved November twenty-third, nineteen hundred and twenty-one, entitled 'An Act for the promotion of the welfare and hygiene of maternity and infancy, and for other purposes,' within the constitutional powers of the federal government?

"(2) Has the Commonwealth of Massachusetts any right, as a sovereign State, to question the constitutionality of said act?

"(3) Would the Commonwealth of Massachusetts, by the acceptance of said act, waive its rights as a sovereign State, if such rights exist, to contest the constitutionality of said act before the courts of the United States?"

"(4) If, in his opinion, said act is unconstitutional, what procedure can the Commonwealth adopt to raise the question of constitutionality?"

I. The act of Congress, approved November 23, 1921, entitled "An Act for the promotion of the welfare and hygiene of maternity and infancy, and for other purposes," commonly known as the Sheppard-Towner Act, authorizes annual appropriations "to be paid to the several states for the purpose of coöperating with them in promoting the welfare and hygiene of maternity and infancy." It contains provisions substantially as follows:

It authorizes the appropriation, for the purposes of the act, of \$480,000 for the current year and \$240,000 for subsequent years, for a period of five years, to be equally apportioned among the several states, and an additional sum of \$1,000,000 a year, for a period of five years, to be apportioned \$5,000 to each state and the balance among the states in proportion to their population, with a proviso that no payment out of the additional appropriation shall be made in any year to any state until an equal sum has been appropriated by such state.

The act creates a "Board of Maternity and Infant Hygiene," with certain supervisory powers. It provides that the "Children's Bureau of the Department of Labor" shall be charged with the administration of the act, and gives the Children's Bureau all necessary powers to coöperate with the states in such administration, for which purpose the Children's Bureau may deduct an amount not exceeding five per cent. of the additional appropriations in any year.

Every state is required, in order to secure the benefits of the appropriations authorized, through its Legislature to accept the provisions of the act and to designate or authorize the creation of a state agency to coöperate with the Children's Bureau.

Any state desiring to receive the benefits of the act is required by its agency to submit to the Children's Bureau detailed plans for carrying out the provisions of the act within such state, such plans to be subject to the approval of the board.

Within 60 days after any appropriation under the act, the Children's Bureau is directed to make the apportionment provided for, to certify to the Secretary of the Treasury the estimated expense of administration, and to certify to the Secretary of the Treasury and to the treasurers of the various states the amount apportioned to each state. Within the same period and from time to time thereafter, the Children's Bureau is directed to ascertain

the amounts appropriated by the several states and to certify to the Secretary of the Treasury the amount to which each state is entitled by reason of such appropriation.

Each state agency coöperating with the Children's Bureau is required to make such reports concerning its operations and expenditures as shall be prescribed by the Children's Bureau, which may, subject to the supervision of the board, withhold the certificate authorizing payment to any state whenever it is determined that the agency thereof has not properly expended the money paid to it or the moneys required to be appropriated by the state for the purposes of the act, an appeal being given from such determination to the President of the United States.

Thus in effect a system is created by which appropriations are to be made by the federal government and the states which accept the provisions of the act, plans are to be submitted to federal boards, the nature of which appears to be wholly undetermined, except that they must have some relation to the "welfare and hygiene of maternity and infancy" and are subject to certain restrictions stated in the act. Those plans are to be administered by officials, agents and representatives of the Children's Bureau in coöperation with the different state agencies, and control over the conduct of the state agencies is vested in the Children's Bureau and the board by the provision authorizing the withholding of the federal appropriation in cases where it is determined as to any state that federal or state funds have not been properly expended.

The purpose and effect of the federal Constitution was to secure a federal government with limited and enumerated powers, for national purposes, reserving all other powers to the states and the people. *McCulloch v. Maryland*, 4 Wheat. 316, 405; *United States v. Cruikshank*, 92 U. S. 542, 549-551; *Kansas v. Colorado*, 206 U. S. 46, 81. The powers expressly granted to Congress, including the power to make all laws necessary and proper for carrying the powers enumerated into execution, are all stated in Article I, Section 8, of the Constitution. All powers not granted to the United States by the Constitution are reserved by the Tenth Amendment to the states or the people. *United States v. Cruikshank*, 92 U. S. 542, 551.

The powers given to the federal government are only those which are necessary to the existence and effective maintenance of the nation. There is no grant of power to Congress to regulate the internal affairs of the states (excepting that given by the Eighteenth Amendment). The police power is a necessary part of the sovereign powers of the states, and was reserved to them by the Tenth Amendment.

Each state has the right and duty to provide for the general welfare of its people, and in those respects the authority of the state is complete, unqualified and exclusive. *New York v. Miln*, 11 Pet. 102, 139; *In re Rahrer*, 140, U. S. 545, 554, 555; *Keller v. United States*, 213 U. S. 138; *Hammer v. Dagenhart*, 247 U. S. 251, 274-276; *The Federalist*, No. 45.

The present act vests in the federal government certain powers relating to maternity and infancy. These matters manifestly fall within the scope of the police power. Most of the expense will be borne by a small minority of the states, while a majority of the states will receive a corresponding benefit for which they do not pay. If the United States possesses no police power, as the Supreme Court of the United States has often held, it would seem that this act is an attempt to usurp an authority reserved to the states and to exercise it at the expense of a minority of them, of which this commonwealth is one.

It appears from the debates in Congress that the proponents of this measure attempt to support it upon the ground that it is a provision for the general welfare of the people of the United States. The words "general welfare" occur twice in the Constitution, once in the preamble and once in Article I, Section 8.

The preamble is as follows:

"We the people of the United States, in order to form a more perfect union, establish justice, insure domestic tranquillity, provide for the common defense, promote the general welfare, and secure the blessings of liberty to ourselves and our posterity, do ordain and establish this CONSTITUTION for the United States of America."

The preamble, however, contains no grant of power. It is a mere statement of the purposes effected by the Constitution itself. *Jacobson v. Massachusetts*, 197 U. S. 11, 22; *Story on the Constitution*, §462.

I pass, therefore, to a consideration of Article I, Section 8, of which the first clause is as follows:

"The congress shall have power—to lay and collect taxes, duties, imposts and excises, to pay the debts and provide for the common defence and general welfare of the United States; but all duties, imposts and excises shall be uniform throughout the United States; . . ."

It is plain that the words "to pay the debts and provide for the common defence and general welfare of the United States" are not a substantive grant of power, but a qualification of the first enumerated power "to lay and collect taxes, duties, imposts and excises." Argument is not needed to support this proposition because the authority for it is conclusive.

The history of the adoption of this clause is given in *George Ticknor Curtis' "Constitu-*

tional History of the United States, Vol. I, pp. 518-521, as follows:

In the first draft of the Constitution the power to tax was stated in what was there Article VII, Section 1, in the following words:

"The Legislature of the United States shall have the power to lay and collect taxes, duties, imposts, and excises."

5 Elliot's Debates, p. 378.

It was thought that there should be some restraint on the revenue power, with a view to prevent perpetual taxes of any kind. The matter was referred to a committee of detail, which reported the following addition:

"For payment of the debts and necessary expenses of the United States; provided that no law for raising any branch of revenue, except what may be specially appropriated for the payment of interest on debts or loans, shall continue in force for more than — years."

5 Elliot's Debates, p. 462.

This was referred to a grand committee, which introduced an amendment making the whole clause read as follows:

"The legislature shall have power to lay and collect taxes, duties, imposts, and excises, to pay the debts, and provide for the common defence and general welfare of the United States."

5 Elliot's Debates, pp. 506, 507.

This amendment was unanimously adopted. The provision for uniformity was added later.

5 Elliot's Debates, p. 543.

In *Loughborough v. Blake*, 5 Wheat. 317, 318, Chief Justice Marshall said:

"The 8th section of the 1st article gives to Congress the 'power to lay and collect taxes, duties, imposts and excises,' for the purposes thereafter mentioned."

Again in *Dobbins v. Commissioners of Erie County*, 16 Pet. 435, 448, 449, the court said:

"The revenue of the United States is intended by the Constitution to pay the debts, and provide for the common defence and general welfare of the United States; to be expended, in particulars, in carrying into effect the laws made to execute all the express powers, 'and all other powers vested by the Constitution in the government of the United States.'"

In *Ward v. Maryland*, 12 Wall. 418, 428, the power to tax was referred to as existing "by virtue of an express grant for the purpose; among other things, of paying the debts and providing for the common defence and general welfare."

In *United States v. Boyer*, 85 Fed. 425, it was held that the "general welfare clause" did not confer any distinct and substantial power on Congress to enact any legislation, but constituted a limitation upon the taxing power.

The text writers also are agreed that the words "to pay the debts and provide for the common defence and general welfare of the United States" are to be construed as if they were preceded by the word "in order," or similar words amounting to a declaration of purpose. Story on the Constitution, §§906-911; Miller on the Constitution of the United States, pp. 229-231.

The form of the Constitution lends strong support to this construction. The document in the rolls of the Department of State shows that in Article I, Section 8, each of the enumerated powers is numbered, from 1 to 18 inclusive, the first being the power "to lay and collect taxes, duties, imposts and excises, to pay the debts and provide for the common defence and general welfare of the United States; but all duties, imposts and excises shall be uniform throughout the United States;" and the second the power "to borrow money on the credit of the United States;" and that each power is separated by a semi-colon. Curtis' "Constitutional History of the United States," Vol. I, pp. 728, note, 731.

While it seems to be definitely settled that the words "to pay the debts and provide for the common defence and general welfare of the United States" are not a substantive grant of power, there has been from the time the Constitution was adopted a contraverted question regarding the interpretation of those words and their bearing on the power of Congress to appropriate money. Hamilton held that Congress had a power to appropriate as broad as the power to tax, and that the revenues of the United States could be appropriated for any public purpose connected with the general welfare of the United States. This doctrine was stated by Hamilton in his "Report on Manufactures" in 1791. It was adopted and followed by Story (§§975-992), and by President Monroe in his message respecting the bill for the repairs of the Cumberland Road, May 4, 1822. On the other hand, Madison held that the general welfare clause is merely descriptive of and limited by the specific grants of power to Congress contained in Section 8, and that the power to appropriate money is also confined to the enumerated powers. Madison expressed this view in *The Federalist*, No. 41, and the statement there made must be presumed to have had some effect in obtaining the ratification of the Constitution by the States. He renewed the same statement in his message vetoing the bill for internal improvements, March 3, 1817, and in a letter to Speaker Stevenson, dated November 27, 1830. Madison's view was supported and emphasized by Jefferson, as stated in his "Opinion on the Constitutionality of a National Bank," February 15, 1791. See Tucker's "Constitution of the United States," §§222-231.

The view that the general welfare clause is merely descriptive of the substantive grants of power which follow it in Section 8 is supported by the circumstance that provisions for the common defence are contained in the grants of power to declare war, to raise and support armies, to provide and maintain a navy, to make rules for the government and regulation of the land and naval forces, to provide for calling forth the militia to execute the laws of the Union, suppress insurrections, and repel invasions, and to provide for organizing, arming and disciplining the militia, while the other powers granted in that section are clearly provisions for the general welfare of the United States.

The question as to the extent of the general welfare clause in its application to appropriations of money was expressly reserved by the Supreme Court in *United States v. Realty Co.*, 163 U. S. 427, 440, where the court said:

"It is unnecessary to hold here that Congress has power to appropriate the public money in the treasury to any purpose whatever which it may choose to say is in payment of a debt or for purposes of the general welfare. A decision of that question may be postponed until it arises."

But the question which I have to determine does not depend for its answer upon a solution of the controversy concerning the limits of the power of Congress to appropriate money. In fact, the Sheppard-Towner Act makes no appropriation of money. It merely purports to authorize sums to be appropriated, thereby announcing, it seems, an intention to appropriate at some future time. It does, however, establish a system by which states desiring to secure the benefits of promised appropriations are required to submit plans for carrying out the provisions of the act to designated federal authorities for their approval, to make appropriations to match federal appropriations, and to coöperate with the federal authorities in the administration of the act, subject to the supervision of those authorities, who, if they determine that either federal or state funds have not been properly expended, may withhold the federal appropriation. This, in my judgment, is not an appropriation bill, but an attempted exercise of power over the subject of maternity and infancy, and thus an incursion into the field of the local police power, reserved to the states by the Tenth Amendment. The objections to the act go further in that the proposed appropriations are not *general* in their application, but are confined to those states which accept the act and appropriate their own funds to be used for its purposes. Hamilton, in his "Report on Manufactures," cited above, although contending for the broad power of appropriation, says that "the object to which an appropriation of money is to be made must

be *general* and not *local*." For this reason the appropriations, if made, in my opinion would not be for the "general welfare of the United States," even if those words are given the broadest signification. Indeed, it is yet to be determined that Congress has the power to appropriate to the states, according to any method of apportionment, revenues raised from the people of the United States for national purposes.

If the powers attempted to be exercised by the Sheppard-Towner Act are outside the powers conferred upon Congress by the Constitution and within the field of the powers reserved to the states, the act is not made constitutional and valid by the circumstance that those powers will only be exercised in or with respect to those states whose Legislatures accept it; for Congress cannot assume and the state Legislatures cannot yield the powers reserved to the states by the Constitution. They can only be granted to the federal government by an amendment to the Constitution. On this precise subject President Monroe, in his message vetoing the Cumberland Road bill, referred to above, holding that Congress had not the power, even with the consent of the states affected, to establish turnpikes with gates and tolls as internal improvements, said:

"I am of the opinion that Congress do not possess this power: that the states, individually, cannot grant it; for, although they may assent to the appropriation of money within their limits for such purposes, they can grant no power of jurisdiction or sovereignty by special compacts with the United States. This power can be granted only by an amendment to the Constitution, and in the mode prescribed by it."

In reply to your first question I am therefore constrained to say that I am of opinion that the act referred to is not within the constitutional powers of the federal government.

II. Your second question, whether the commonwealth of Massachusetts has any right as a sovereign state to question the constitutionality of the act, and your fourth question, what procedure can be adopted to raise the question of constitutionality, will be considered together.

It is well established that any person whose rights are directly affected by an act of Congress may question its constitutionality before the court, and that it is the court's duty in a proper case, where an act of Congress infringes upon the provisions of the Constitution, to declare that act unconstitutional and void. *Vanhorne's Lessee v. Dorrance*, 2 Dall. 304, 308, 309; *Marbury v. Madison*, 1 Cranch 137; *McCulloch v. Maryland*, 4 Wheat. 316, 400, 401.

But the right to declare an act unconstitutional can be exercised only when proper parties are before the court in an actual controversy, involving the constitutional question in the determination of the rights of litigants.

Steamship Co. v. Emigration Commissioners, 113 U. S. 33, 39; *Muskra v. United States*, 219 U. S. 346, 361; *Fairchild v. Hughes*, No. 148—October Term, 1921.

The most direct method of testing the constitutionality of the Sheppard-Towner Act, if not the only method, is by proceedings in equity against those officials of the federal government who are acting or preparing to act to carry its provisions into effect. By U. S. Const., Art. III, Sec. 2, the Supreme Court has original jurisdiction of all cases in which a state shall be a party. The inquiry, therefore, is in the first instance, whether the commonwealth may maintain such a suit in the Supreme Court as party plaintiff, and, secondly, whether the suit will lie against federal officials as parties defendant.

1. There are instances of suits brought by states which the Supreme Court has declined to entertain on the ground that they called upon the court to determine questions which were political and not judicial. The most noteworthy of these cases is *Georgia v. Stanton*, 6 Wall. 50, where the state brought an original bill to restrain the Secretary of War and other officers of the government from carrying into effect the so-called Reconstruction Acts. The court held that the rights for which protection was sought were rights of sovereignty, that no rights of persons or property were being infringed, and that the questions were political; and they dismissed the bill for want of jurisdiction. The decision, however, seems to go no further than *Luther v. Borden*, 7 How. 1, and *Pacific Telephone Co. v. Oregon*, 233 U. S. 118, holding that it is for Congress and not for the court to decide what is the established government in a state, and to enforce the constitutional guaranty of a republican form of government, the questions involved being political and beyond the judicial power.

On the other hand, the court has from early times entertained suits to determine which of two states had political jurisdiction over disputed territory, since such a controversy is clearly justiciable. *Rhode Island v. Massachusetts*, 12 Pet. 657, 736-738; *Virginia v. West Virginia*, 11 Wall. 39. More recently the jurisdiction has in many cases been sustained in suits by states to enforce their sovereign rights, and as *parens patriæ* or representative of their citizens.

The question whether a state may sue as representative of its citizens was presented but not settled in *Louisiana v. Texas*, 176 U. S. 1, 19. But in later decisions this question has been answered in the affirmative, and the distinction made in *Georgia v. Stanton*, 6 Wall. 50, between rights of property and rights of sovereignty has been disregarded. These decisions have made it plain that suits by states.

will lie for the protection both of their own sovereign rights and of the personal and property rights and welfare of their citizens generally. On these grounds suits have been sustained to restrain interference with the flow of rivers and water supply, and pollution of the air. Jurisdiction is accepted broadly wherever the controversy is justiciable in its nature, in recognition of the fact that the states in joining the Union relinquished the right they would otherwise have had to seek remedies by negotiation or force, that there should be some remedy for the settlement of disputes, and that one may be found in the constitutional provisions giving the Supreme Court jurisdiction of suits by states. *Missouri v. Illinois & Chicago District*, 180 U. S. 208, 241; *Kansas v. Colorado*, 185 U. S. 125, 206 U. S. 46, 83, 84, 89; *Georgia v. Tennessee Copper Co.*, 206 U. S. 230, 237; *Virginia v. West Virginia*, 220 U. S. 1, 27; *New York v. New Jersey*, 256 U. S. 296, 301, 302.

The question whether an act of Congress is in violation of the reserved powers of the states and therefore unconstitutional seems clearly to be justiciable, and the Supreme Court has so decided in *Hammer v. Dagenhart*, 247 U. S. 251. In that case the court held that a United States district attorney should be enjoined from enforcing an act of Congress prohibiting the transportation in interstate commerce of products of child-labor, on the ground that the law was an invasion of the local police power, reserved to the states by the Tenth Amendment.

Where an act of Congress encroaches upon the rights reserved to the states by the tenth amendment, any state affected thereby must have the right to resort to some tribunal for the protection of those rights or be without remedy. That the states themselves are entitled to such protection by the judicial power, and that it is the duty of the court, in a proper case, to hold such an act unconstitutional, and to grant relief, has several times been declared. *Ableman v. Booth*, 21 How. 506, 519, 520; *Gordon v. United States*, 117 U. S. 697, 700, 701, 705; *Matter of Heff*, 197 U. S. 488, 505; *South Carolina v. United States*, 199 U. S. 437, 448.

If, for reasons stated, the Sheppard-Towner Act is unconstitutional as representing an attempt by Congress to exceed its constitutional powers and to usurp the rights reserved to the states by the Tenth Amendment, it follows that the commonwealth in a proper case can raise the question of constitutionality by bringing suit in the Supreme Court, if and when it is affected by the act.

The act does not confer upon the federal agencies created or designated by it any authority which operates in Massachusetts unless and until its Legislature accepts the act and makes the required appropriation. If the

Legislature purports to accept the act, the right of the commonwealth subsequently to complain that the act is unconstitutional, as hereafter stated in reply to your third question, will be open to serious question. If the act is not accepted and does not become operative within the commonwealth, there would be no encroachment upon the police power of Massachusetts if the act should be put into effect in other states.

It does not follow, however, that the commonwealth is not affected if the act is put into effect in other states. The grants to such states are to be paid out of the federal treasury. That treasury is replenished by internal revenue taxes paid by the people of the several states. It has been estimated that 5.66 per cent. of those taxes are paid by the citizens of Massachusetts. If Massachusetts can and does accept the act it has been estimated that the return to it thereunder will be less than half the amount collected from its citizens. If Massachusetts does not accept the act its citizens will be taxed in order to carry into effect an unconstitutional law in other states. Assuming that a federal tax, otherwise lawful, imposed to raise revenues for lawful purposes, does not become unconstitutional because it taps and diminishes a source of revenue available to the states (*Knowlton v. Moore*, 178 U. S. 41; *New York Trust Co. v. Eisner*, 41 Sup. Ct. Rep. 506), it does not follow that a state whose revenues are diminished by federal taxation imposed in order to execute an unconstitutional law is not so affected thereby that it cannot attack that expenditure in the Supreme Court of the United States. If the state is without remedy it is under the dilemma of consenting to be stripped of a power reserved by the Tenth Amendment, in order to share in such unconstitutional benefits as Congress may choose to accord, or else of bearing unheard and without redress a part of the burden of conferring such alleged benefits on other states.

The right of Massachusetts to bring suit may be supported upon the further ground that the rights of its taxpaying citizens are invaded. It is doubtful whether taxpayers can maintain suits in their individual capacity to restrain an unconstitutional expenditure. See *Bradfield v. Roberts*, 175 U. S. 291; *Millard v. Roberts*, 202 U. S. 427, 438. There is, however, in my opinion, strong argument for the view that the state can present the question on their behalf as *parens patriæ*, following the analogy of the nuisance cases already cited. If neither the state nor the taxpayer can sue, then there can be no remedy against such an unconstitutional exercise of power by Congress, although the issue is plainly justiciable.

The novelty of the question prevents a more definite answer to your inquiry. It is for the

Legislature, in its wisdom, to determine whether a question of such vital importance to the state, involving, as it does, a principle capable of indefinite application in the broad and paternalistic field of social welfare, should not be submitted for adjudication to our highest court.

2. It remains to be considered whether suit may be brought against the federal officials whose duty it is to administer the act.

In *Mississippi v. Johnson*, 4 Wall. 475, the Supreme Court denied leave to file a bill against President Johnson to restrain him from putting the Reconstruction Acts into force. In *Georgia v. Stanton*, 6 Wall. 50, the Supreme Court dismissed a similar bill, as already stated. The circumstances which led to the passage of these bills, which were designed to create a temporary government for the seceded states, and the effect of later decisions afford ground for belief that those decisions would not govern in the present case.

Later cases hold that suit will lie where rights of property are unlawfully invaded by federal officers, and where the United States is not a defendant or a necessary party. *United States v. Lee*, 106 U. S. 196, 204-208; *Noble v. Union River Logging R.R.*, 147 U. S. 165, 171, 172; *Belknap v. Schild*, 161 U. S. 10, 18; *School of Magnetic Healing v. McAnnulty*, 187 U. S. 94; *Lane v. Watts*, 234 U. S. 525, 540. Furthermore, the court has frequently held broadly that state officers clothed with some duty in regard to the enforcement of the laws of the state may be enjoined from proceeding under an unconstitutional statute which they are about to enforce to the plaintiff's injury, and that a suit for such injunction cannot be regarded as a suit against the state. *Osborn v. United States Bank*, 9 Wheat. 738, 846, 857; *Davis v. Gray*, 16 Wall. 203; *Pennoy v. McConaughy*, 140 U. S. 1, 10; *Smyth v. Ames*, 169 U. S. 466, 518, 519; *Ex parte Young*, 209 U. S. 123, 149, 155, 156; *Western Union Telegraph Co. v. Andrews*, 216 U. S. 165; *Truax v. Raich*, 239 U. S. 33, 37; *Greene v. Louisville & I. R.R. Co.*, 244 U. S. 499, 506, 507. Recently this same principle has also been extended to suits against federal officers seeking to restrain them from acting under statutes alleged to be unconstitutional. *Philadelphia Co. v. Stimson*, 223 U. S. 605, 619, 620; *Wilson v. New*, 243 U. S. 332; *Hammer v. Dagenhart*, 247 U. S. 251. Federal jurisdiction does not depend on diversity of citizenship, but exists because such suits arise under the Constitution or laws of the United States. *Ex parte Young*, 209 U. S. 123, 143-145.

In the *National Prohibition Cases*, 253 U. S. 350, two of the cases were suits by the States of Rhode Island and New Jersey against the Attorney-General and the Commissioner of In-

ternal Revenue, seeking to have the Eighteenth Amendment and the Volstead Act declared unconstitutional and void, and to enjoin the enforcement of the act. The main ground on which unconstitutionality was claimed was that the amendment and the act constituted an interference with the sovereign rights of the states to govern their internal affairs, that is, the local police power. Original bills in each of the two cases were permitted by the court to be filed (252 U. S. 570), and no question of jurisdiction was raised or reserved in the opinion by which all the suits were dismissed on the merits.

The opinion in the recent case of *Texas v. Interstate Commerce Commission*, No. 24 Original—October Term, 1921, contains an intimation that the original jurisdiction of the court over suits where states are parties may be somewhat narrow, but the decision of the case goes on the ground that necessary parties were not before the court.

I conclude, therefore, that assuming that the commonwealth may bring the suit as party plaintiff, the fact that the defendants would be federal officials would not defeat it.

III. Your third question is whether the commonwealth by accepting the act would waive any right it may have to contest the constitutionality of the act before the courts of the United States.

The act provides that any state in order to secure the benefit of federal appropriations must accept the provisions of the act, designate the state agency with which the Children's Bureau is to coöperate, and submit to the Children's Bureau detailed plans for carrying out the provisions of the act within the state. It contemplates also appropriations by the state to match federal appropriations. These provisions, it seems to me, must be construed as a proposal for a contract with the several states, which, when accepted by any state, would constitute an agreement by the state to be bound by the terms of the act, if such an agreement could be made. Whether the state, acting by its Legislature alone, or in any manner other than that provided by the Constitution itself, can contract away its sovereign rights is a matter of grave doubt. But apart from any question of the validity of such a contract, there would appear to be an inconsistency in accepting the benefits of the act and then bringing suit to avoid its obligations and effect.

I am therefore of opinion that the passage of an act by the General Court accepting the provisions of the Sheppard-Towner Act would place the commonwealth in a less favorable position to contest its validity.

Very truly yours,

J. WESTON ALLEN,
Attorney-General.

ANNUAL MEETING OF THE MASSACHUSETTS MEDICAL SOCIETY.

As announced in last week's issue of THE JOURNAL, an innovation this year at the annual meeting of the Massachusetts Medical Society will be a series of practical demonstrations at the Harvard Medical School on Wednesday, June 14. These demonstrations will be given morning and afternoon, the annual discourse coming at noon, followed by luncheon on the terrace. The program of these demonstrations is as follows:

June 14, 1922

WEDNESDAY MORNING

From 9.30 to 10.30 o'clock

ONE HUNDRED AND FORTY-FIRST ANNIVERSARY

Harvard Medical School, Building C, Amphitheatre.
DEPARTMENT OF PHYSIOLOGY

Demonstrations and Papers, under the supervision of Alfred C. Redfield, M.D.

1. "The Experimental Production of Traumatic Shock."
By Mr. F. R. Griffith.
2. "The Growth of School Children."
By W. T. Porter, M.D.
3. "The Distribution of Lead in Acute and Chronic Lead Poisoning."
By Miss Anne Minot.
4. "The Pulmonary Arterial Pressure."
By C. K. Drinker, M.D.

From 10.30 to 11.30 o'clock

Harvard Medical School, Building E, Amphitheatre.
DEPARTMENT OF PHARMACOLOGY

Demonstrations by Reid Hunt, M.D.

1. "The Newer Drugs of Greatest Value to the Practitioner."
2. "Latest Advances in Local Anaesthesia."
3. "New Therapeutic Agents and Their Value."
4. "Experimental Demonstration of Salvarsan."

WEDNESDAY NOON

THE ANNUAL DISCOURSE

Harvard Medical School, Building C, Amphitheatre.
"The International Mind in Medicine."
By Kendall Emerson, M.D., Worcester.

From 1 to 2 o'clock

LUNCH WILL BE SERVED

to members on the Terrace on the payment of a small charge.

WEDNESDAY AFTERNOON

From 2 to 3 o'clock

Harvard Medical School, Building C, Amphitheatre.
DEPARTMENT OF CHEMISTRY

"Modern Blood Analysis."

By Otto Folin, M.D., and Helsing Berglund, M.D.

From 3 to 4 o'clock

Harvard Medical School, Building E, Amphitheatre.
DEPARTMENT OF HYGIENE

Demonstrations under the supervision of M. J. Rosenau, M.D.

1. "The Schick Test."
2. "The Wassermann Reaction."
3. "A Discussion on Botulism and Food Poisoning."
4. "Vaccines and Other Experimental Work on Pneumonia and Influenza."

NATIONAL HOSPITAL DAY AT THE BEVERLY HOSPITAL.

NATIONAL HOSPITAL DAY, Friday, May 12, 1922, was observed at the Beverly Hospital by a clinic at 11 A. M. Doctors were present from Beverly, Danvers, Topsfield, Hamilton, Manchester, Salem, Lynn and Boston.

Post-operative cases of gall-bladder disease, pyloric ulcer, renal calculus and tubercular peritonitis were shown and discussed by Dr. P. P. Johnson of Beverly. Dr. Clifton L. Buck of Danvers read a paper on "Diabetes," and cases were shown. Dr. Albert E. Parkhurst of Beverly read a paper on "Basal Metabolism," with a demonstration of the Benedict Arnold apparatus. Dr. John D. Adams of Boston spoke on "Occupational Therapy."

The clinic was followed by a lunch which was served in the doctors' room of the new wing of the hospital.

Following the lunch the new wing was inspected by the visitors.

In the afternoon, the hospital and nurses' home was open to the public for inspection.

In the evening, graduating exercises were held in the nurses' home. The program was as follows:

March.

Prayer.....Rev. W. E. Jones
Chorus.....Training School Glee Club
Address.....Rev. Dr. Bayes
Solo.....Mr. Roy K. Patch
History, Life of Florence Nightingale,

Miss B. A. Carter
Chorus.....Training School Glee Club
Report of the Training School and Presentation of
Diplomas and Pins.....Mr. John L. Saltonstall
Solo.....Mr. Roy K. Patch

Refreshments and Dancing.

Graduates, Class of 1922: Ruth E. Mehaffey, Elizabeth K. Ober, Dorothy I. Roberts, Dorothy M. Hoyt, Blanche A. Carter, Catherine Foote.

COMPLIMENTARY DINNER.

A COMPLIMENTARY dinner was given to Lieutenant-Colonel Fielding H. Garrison, M. C., U. S. A., at the Restaurant Madrillon on Monday, May 1, 1922, in Washington, D. C. Dr. Harvey Cushing presided and Dr. W. H. Welch addressed the company.

Dr. Garrison is the principal assistant librarian in the Surgeon-General's office, editor of the Index Medicus, and author of "An Introduction to the History of Medicine."

The following named friends of Dr. Garrison participated: Dr. William H. Welch, presiding; Abt, Isaac A.; Bitterman, Captain; Blumer, George; Borden, W. C.; Brown, H. M.; Cooke, G. Wythe; Corner, G. W.; Cullen, T. S.; Cushing, Harvey; Dana, Charles L.; Dock, George; de Schweinitz, George; Foley, Thomas;

Foote, John; Greene, R. W.; Halsted, W. S.; Hemmeter, J. C.; Hoeber, Paul B.; Jacobs, H. B.; Jackson, Edward; Kelly, H. A.; Kober, George M.; Matas, R.; Mallory, W. J.; Menck-en, H. L.; Nichols, John B.; Noble, General Robert N.; Northington, Major; Packard, F. R.; Pleadwell, Captain F. L.; Reisman, David; Roy, P. S.; Rountree, L. G.; Ruhrah, John; Siler, Colonel J. S.; Seelig, N. G.; Streeter, E. C.; Stone, I. C.; Talbot, Fritz B.; Tasker, Major Arthur; Van Ingen, Philip; Vaughan, Victor; Viets, Henry; Welch, W. H.; White, William A.; Wood, Casey A.

THE WASHINGTON SESSION OF THE CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.

At the Congress of American Physicians and Surgeons in its twelfth triennial session in Washington, D. C., May 2nd and 3rd, 1922, among the New England physicians who took part in the proceedings were:

Dr. Eugene A. Crockett of Boston, who read a paper on "An Unusual Cerebral Complication of Mastoid Operation Relieved by Sub-dural Drainage" before the American Otolological Society.

Dr. H. C. Solomon and Dr. A. E. Taft of Boston, "The Effects of Anti-Syphilitic Treatment as Indicated by the Histological Study of the Cerebral Cortex in Cases of General Paresis," by invitation.

Dr. Stanley Cobb of Boston, "Electromyographic Studies of Paralysis Agitans," and Dr. Gilbert Hor-rax of Boston, by title, "A Consideration of the Dermal Versus the Epidermal Cholesteatomata Orig-inating in the Cerebral Envelope," by invitation, before the American Neurological Association.

Dr. E. L. Oliver of Boston, "The Use of Ultra-Violet Light in Erythema Induratum," before the American Dermatological Association.

Dr. Joseph L. Goodale of Boston, "Vasomotor Dis-turbance of the Upper Air Passages and Sinus Dis-ease"; Dr. Francis M. Rackemann of Boston, "Obser-vations on Asthma," and Dr. Rockwell A. Coffin of Boston, "Experiments with Atmospheric Pressure in the Antrum of Highmore," before the American Laryngological Association.

Dr. Daniel F. Jones of Boston, "End-Results of Carcinoma of the Rectum"; Dr. Lincoln Davis of Boston, "End-Results of the Radical Surgical Treat-ment of Carcinoma of the Cervix Uteri"; Dr. Chan-ning C. Simmons and Dr. E. M. Daland of Boston, "The Results of Operations for Carcinoma of the Lip at the Massachusetts General Hospital from 1909 to 1919," by invitation; Dr. Charles L. Scudder of Boston, "Cases of Chronic Gastric and Duodenal Ulcer Treated by Operation at the Massachusetts General Hospital Clinic—Results"; Dr. Charles A. Porter of Boston, "An Analysis of My End-Results in Thyroid Surgery," and Dr. Frederic J. Cotton of Boston, "Wrist Fractures: Disabilities Following Restorative Operations," before the American Surgi-cal Association.

Dr. John B. Hawes, 2nd, of Boston, "The Diagnosis of Juvenile Tuberculosis," and Dr. Samuel A. Levine of Boston, "Some Clinical Observations on Angina Pectoris," by invitation, before the American Clima-tological and Clinical Association.

Dr. Franklin W. White of Boston, "The Simul-taneous Variation in Acidity of Gastric Contents in Different Parts of the Stomach"; Dr. I. Chandler Walker of Boston, "Sensitization Tests with Digestion Products of Proteins"; Dr. Joseph H. Pratt of

Boston, "The Value of Vital Capacity Determinations in the Diagnosis and Treatment of Heart Disease"; Dr. Francis H. Williams of Boston, "The Treatment of Tonsils by Radiation from Radium Salts in 100 Cases"; Dr. Paul D. White of Boston, "Clinical Observations on Heart Block"; Dr. Henry A. Chris-tian of Boston "Digitalis Effects in Cardiac Cases with Regular Rhythm"; Dr. Elliott P. Joslin of Boston, "The Clinical Aspect of Studies upon the Metabolism of Diabetes"; Dr. M. J. Rosenau of Boston, "Experimental Botulism with Special Refer-ence to Serum Therapy"; Dr. James P. O'Hare of Boston, "The Relation between Arteriosclerosis and Blood Pressure," before the Association of American Physicians.

Dr. William C. Quinby of Boston "Hydronephrosis Associated with Anomalous Renal Blood Supply"; Dr. Arthur L. Chute of Boston, "Cases Illustrating the Origin of Certain Cases of Hydronephrosis," and "Case of Pelvic Kidney"; Dr. Richard F. O'Neil of Boston, "Some Cases of Hydronephrosis," and "A Case of Double Ureter and Double Renal Pelvis," and Dr. J. Dellinger Barney of Boston, "Gonococcus Infection of the Kidney with Report of a Case," before the American Association of Genito-Urinary Surgeons.

Dr. Z. B. Adams of Boston, "The Treatment of Congenital Dislocation of the Hip as Practiced by Professor Denucé at Bordeaux, France"; Dr. James B. Ayer of Boston, "Combined Cistern and Lumbar Puncture: an Aid in the Diagnosis of Compression of the Spinal Cord," by invitation; Dr. W. J. Mixer of Boston, "Fracture of the Spine with Cord Involvement—An Unsolved Problem," by invitation; Dr. Lloyd T. Brown of Boston, "Beef Bone in Stabilizing Operations of the Spine"; and Dr. Mark H. Rogers of Boston, "Pathology of Tuberculosis of Joints," before the American Orthopedic Association.

Dr. Maynard Ladd of Boston, "Presidential Ad-dress"; Dr. John Lovett Morse of Boston, "D'Espine's Sign in Childhood"; Dr. Fritz B. Talbot and Dr. Warren R. Sisson of Boston, "Studies of the Basal Metabolism of Premature Infants," by invitation, and Dr. Edwin H. Place of Boston, "The Dosage of Diphtheria Antitoxin, and Analysis of the Records of the South Department," before the American Pediatric Society.

Dr. J. Bronfenbrenner and Dr. Harry Weiss of Boston, "Serum Therapy of Botulism," by invitation; Dr. J. Bronfenbrenner and Dr. M. J. Schlesinger of Boston, "On the Nature of Botulinus Toxin"; Dr. N. Chandler Foot of Boston, "The Pathology of the Dermatitis Caused by the Texan Puss-Caterpillar (megalopyge opercularis)"; and Dr. Myrtelle M. Canavan of Boston, "This Histology of the Superior Lacrymal Gland in Cases of Mental Disease and Defect," before the American Association of Pathol-ogists and Bacteriologists.

Dr. George C. Shattuck of Boston, "Incidence of Tropical Diseases among Hospital Patients in Bos-ton," before the American Society of Tropical Medi-cine.

The pleasure and profit to be derived in attending a Congress such as this comes only in a small degree from listening to scientific papers, but is in the mingling in close and genial fellowship of men from all over this country doing intensive work of the highest grade along special lines. Washington was crowded with physicians and scientists of every variety. As a result of the recent fire at the New Willard Hotel, which prevented the use of nearly 150 rooms, it was difficult to find quarters. The city was particularly beautiful. The new Lincoln Mem-orial in particular made the trip alone worth while. The hospitality of the physicians from the city of Washington itself was unbounded, and a par-ticularly pleasant occasion was the lunch given at

the home of Dr. Charles W. Richardson by the Presidents of four or five well known societies, including Dr. Richardson himself.

Immediately following the Congress came the meeting of the National Tuberculosis Association. The Secretary of State, Mr. C. E. Hughes, gave an inspiring address before a large audience and which was followed by a scholarly presidential address by Dr. James W. Miller, the retiring President of the Association. The following men, physicians from this district, took part in the proceedings:

Dr. John B. Hawes, 2nd, read his paper on "The Problem of the Tuberculosis Suspect," before the Clinical Section, and also opened the discussion of the Symposium of "Tuberculosis in Industry," in the Sociological Section. Dr. F. H. Hunt, resident physician of the Boston Sanatorium, spoke on "Chronic Tuberculosis in Children." Dr. Wm. R. P. Emerson of Boston spoke at the Symposium on "Nutrition" for the Sociological Section. Miss Bernice W. Billings of Boston, Secretary of the Nursing Section of this Association, took part in the discussion of the papers presented at this Section.

Other men from Massachusetts whose names do not appear in the program who were present are as follows:

Dr. Vincent Y. Bowditch of Boston, Dr. Walter Griffin of Sharon, Dr. Edward O. Otis of Boston, Dr. N. K. Wood of Boston, Dr. Sumner Remick of Boston, Dr. Olin S. Pettingill of the Essex Sanatorium in Middleton, Dr. Harry Wagner of the Barnstable Infirmary in Pocasset, Dr. E. B. Emerson of the Rutland State Sanatorium, and Dr. Henry B. Chadwick of the Westfield State Sanatorium.

THE SAMUEL FULLER MEMORIAL FUND.

The following subscriptions have been received to date, and are herewith gratefully acknowledged:

1. George Washington Gay, Boston.... \$5.00
2. Charles Montraville Green, Boston.... 5.00
3. Robert Montraville Green, Boston.... 5.00
4. John Woodbury Stimson, Fitchburg... 5.00

Contributions to this fund in memory of the Pilgrim Physician should be sent to Dr. Robert M. Green, 496 Commonwealth Avenue, Boston.

LEGISLATIVE MATTERS.

House Bill No. 1655. This bill provides for the establishment of a department of administration and finance to be organized in three bureaus—a comptroller's bureau, a budget bureau, and a purchasing bureau. No supplies are to be purchased or contracted for by any State department unless approved by the State purchasing agent as being in conformity with the rules, regulations and orders made by the department of administration and finance. This department, under this act, would be given full authority covering the standardization of qualities, grades and brands of articles to be purchased, the use and disposal of the products of State institutions, and the disposal of obsolete, excess and unsuitable supplies "and other property" and the transfer of same to other departments. Rules, regulations and orders made by this department shall not restrict the several State departments, officers and commissions as to the quantity of supplies, etc., "except with respect to the time of purchase and the character, form, quality, grades and brands." This act deprives the institutions of the State of the power to determine what supplies are needed for their patients, and gives them no control over the quality, grade and amount of supplies purchased. The purchasing of supplies for the hospitals, charitable

institutions, sanatoria, etc., of the Commonwealth would, in other words, be delegated to a clerk in this department, and be placed in the hands of persons who have had no experience in the management of hospitals or charitable institutions, and no knowledge of their needs. This would be a handicap on the institutions of Massachusetts which would inevitably result in a lowering of the standards of which the State has been proud for so many years.

Senate 486. Bill relative to an investigation by the Department of Mental Diseases of the mental condition of certain persons held for trial. New draft of Senate Bill 426 reported, ought to pass, by the Senate Committee on Ways and Means, and placed in the Orders of the Day for next session.

An Order was adopted in the House as follows: *Ordered*, That the Attorney-General be authorized and requested in his discretion to bring suit in behalf of the Commonwealth, in the name of the Commonwealth or otherwise, and in such court or courts as he may deem expedient, for the purpose of testing the constitutionality of the Act of Congress, approved November twenty-third, nineteen hundred and twenty-one, entitled, "An Act for the Promotion of the Welfare and Hygiene of Maternity and Infancy and for Other Purposes," known as the Sheppard-Towner Act, and to enforce and protect the rights and interests of the Commonwealth and its citizens as they may be affected thereby.

Correspondence.

THE PASSING OF THE MEDICAL RECORD.

Mr. Editor:

A statement that the passing of the Medical Record "means the end of independent medical journalism" has caused considerable criticism in the Medical Press. This statement, which was declared "absolutely false," was attributed to me in a letter to the New York Herald on April 22 over the signature of the A. R. Elliott Publishing Company. The communication from the Elliott Company was in reply to one from me to the New York Herald on April 20, 1922, in which, referring to the merger of the Medical Record and the New York Medical Journal, I said: "In the first place this means the end of independent *weekly* medical journalism in this part of the United States, if not throughout the country."

I am asking the publication of this "explanation" in the BOSTON MEDICAL AND SURGICAL JOURNAL as the New York Herald has ignored two requests to this effect. As to the charge of "absolute falsehood," I leave it to be placed where it belongs by any unprejudiced reader of my original communication and the perverted version of it to which I have called attention.

JOHN P. DAVIN, M.D.
117 W. 76th Street, New York City.

SUFFOLK DISTRICT MEDICAL SOCIETY.—The Research Club at the Harvard Medical School invites the members of the Suffolk District Medical Society to a special meeting to be conducted from 12.30 p. m. to 1.30 p. m., Friday, May 26, 1922, in the Amphitheatre of Building D, by Dr. S. P. Goodhart, Assistant Professor of Neurology at Columbia University, New York. The program is: (a) Demonstration by means of Moving Pictures of Some Rare Types of Nervous Diseases; (b) Analysis by Slow Motion Pictures of Motor Disorders in Nervous Diseases. (Bradykinetic Analysis.)

The Boston Medical and Surgical Journal

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Original Articles.

AVULSION OF THE SCALP. REVIEW OF THE LITERATURE AND THE REPORT OF A CASE.

BY CHARLES A. PORTER, M.D., BOSTON.
Surgeon-in-Chief, West Service, Massachusetts General Hospital,

AND

WILLIAM M. SHEDDEN, M.D., BOSTON.
Surgical Resident, West Service, Massachusetts General Hospital.

IN May, 1916, Miss I. C., aged 58, was caught by the hair in the revolving wheel of a shoe-stitching machine. Her entire scalp was torn off, as was also the upper part of both upper lids and the left ear, excepting the tragus, anti-tragus, and lobule. This left upper ear remained attached by a narrow pedicle posteriorly.

She was taken at once to a hospital in her home town where wet dressings were applied and hemostasis was effected. She did not lose consciousness at any time.

After nine weeks of wet dressings, a heterogenous Thiersch graft was transplanted to the

patient's vertex. This did not take. Reverdin autogenous grafts were then applied. This procedure was repeated about every ten days during the next three months, and most of these grafts took. In May, 1917, through June of same year, three plastic operations were done to relieve contractions of the eyelids. These operations consisted merely of lysis of scar without grafting.

She first entered the Massachusetts General Hospital in November, 1917. She then showed a head covered with a thin, shiny skin through which many blood-vessels showed and which was adherent to the skull and only slightly movable. The area of previous denudation extended from just below the eyebrows to just above the occipital protuberance. Laterally it reached to both ears. The left ear at its upper half was drawn back and bound down in scar tissue. Plastic operations were done by Dr. Porter on the ear and on both eyelids, restoring the former to its normal position and giving more freedom of movement to the latter. She was discharged, February 9, 1918.

It was noted during the time she was under observation that the scalp tended to intermittently lose considerable portions of skin from pressure or microbial invasion. The skin was tense and shiny, and by the middle of February, 1919, there were about a dozen areas, each about



MISS I. C.—Four weeks after the second trephining.

the size of a dime, which were superficially ulcerated and covered with a film of purulent material and crust.

In February, 1921, she again entered the hospital. The superficial ulcerations were increasing in number and the patient complained of a constant dull ache in her "eyeballs." Dr. Porter now made an attempt to get better vascularization of the scalp by drilling through the calvarium to the dura through five of the ulcerated areas in the frontal region. The skull was unusually thick and hard and there seemed to be no diploe. She left the following month and improved slightly for a while as regards the ulcerations, but entered the hospital again the following August, showing six large and ten small ulcerations. She now complained of a constant dull generalized headache and of a feeling of pressure so intense that she could not even bear to have her wig on. Eighteen holes about 1 cm. in diameter were now drilled as before, through the calvarium to the dura. There was very little operative reaction. During her convalescence her temperature occasionally rose to 100 F. One week after operation the headache had disappeared. In September she was discharged. The drill holes were irrigated with Dakin's, and healthy granulations soon appeared.

From that time until the first week in January, 1922, the scalp gradually healed. Each drill hole continued to suppurate until it dis-



MISS I. C.—Four weeks after the second trephining.



Ring of bone extruded from one of the frontal trephine holes.

charged a bit of necrotic bone, the necrosis resulting from the trauma of the drill used in the trephining. These pieces were sometimes complete bony rings. All previous symptoms have now disappeared and the patient declares she feels perfectly well. The scalp is almost completely healed and shows no tendency to break down.

Avulsion of the scalp occurs most often in women working in factories, whose long hair becomes caught in revolving machinery. There are five layers of the scalp—the skin, the subcutaneous fat, the epicranial aponeurosis, a layer of loose areolar tissue, and the pericranium. In cases of avulsion, the plane of separation is in the areolar tissue between the aponeurosis and the pericranium, and often portions of the pericranium are also torn away.

These cases may be treated by plastic oper-

ations or by skin grafting. Autogenous grafts are best, both Thiersch and Reverdin having fair success. The literature shows that the heterogenous grafts practically always fail, though Bevings⁵ reports success with one case. Occasionally, if the scalp is not entirely avulsed and has a sufficient blood supply, it may be sutured back into place.

Bevings found in the *Philadelphia Medical and Physical Journal* the report of an avulsion of the scalp, in 1777. In this case the surgeon in charge, named Vance, ordered multiple trephining of the skull, apparently to the diploe, for he stated that he used a shoemaker's awl and that the time to quit boring was "when a red-dish fluid appeared on the point of the awl." He declared that "proud flesh appeared to rise in these holes, but that it skun over slow."

Mellish⁴ states that complete avulsion is sometimes attended with fatal hemorrhage and shock, and that the next danger is from infection.

A noteworthy feature is the length of time required to obtain healing. Gussenbauer had a case lasting for twenty months, owing to the continual breaking down of the cicatrices. Abbe, of New York, reported a case in which 12,000 grafts were planted in four years.

In 1915, Davison⁷ trephined a skull in order to obtain healthy granulation tissue to cover over an area where the pericranium had sloughed. He drilled to the dura. The bone beneath had begun to undergo necrosis, but at the same time granulations had appeared through the two parietal foramina and to a slight extent through the suture line between the two parietal bones. This suggested that if there were enough foramina, there would be enough granulation tissue to cover the surface. He therefore drilled about fifty holes through the calvarium. Granulations soon appeared through the holes and spread rapidly over the denuded area.

Robinson⁸ declares that the secondary breaking down of the healed areas occurs less often if the thick Wolfe-Krause grafts are employed. Grafts, he says, will grow readily on primary wound surface.

Davis⁸ reports two cases of avulsion, in one of which, four years after the accident, the patient was constantly bothered with a sensation of a heavy weight pressing on the top of her head. The other case was grafted unsuccessfully with pigskin and lambskin but was finally satisfactorily grafted according to the Thiersch method. There were marked hemorrhages in both his cases, but no shock in either.

Davis feels that the whole thickness grafts are the most satisfactory in the treatment of these cases. He gives some interesting historical data on avulsion, from which we quote rather freely. "The practice of scalping," he says, "was not uncommon among the Asiatics, Europeans and Africans, and is mentioned twice in

the Bible. The American Indians practiced scalping long before the advent of Columbus. The amount of scalp removed varied with the tribe.

"The first case of scalping due to machinery, recorded in medical literature, is that of Downs, which occurred on June 23, 1838. Netolitzki was the first to employ grafts in the treatment of scalping. . . ."

He then describes a series of experiments by Fouchard on the cadaver, from which he concludes that the tearing of the scalp is produced by a sudden violent traction, which is exerted obliquely from front to back, the superciliary ridges acting as the cutting instrument, and the skin is cut by them where it is the thinnest.

Davis, in 1910, summarized ninety-two cases of total avulsion and thirty cases of partial avulsion, totalling one hundred and thirty-two. He suggests the transplanting of hair-bearing skin in certain selected cases. With the Reverdin grafts, he thinks there is more likelihood of contraction than by Thiersch's method.

Law⁹ says that when the skull is laid bare there is frequently necrosis and exfoliation of the outer table, granulations forming in the vascular diploe and lifting up the thin layer of bone above. He reports the successful grafting of a granulating skull with amniotic membrane after drilling holes through the skull to the diploe.

In 1914 Müller¹⁰ reported a case of total avulsion and added eighteen others which had been collected by Myata and von Enz, thus bringing the total number of cases of avulsion up to one hundred and forty-one.

Exclusive of the cases reported by Davis, Müller, Myata, and von Enz, we have found twenty-six others in the literature.

Case 142. Byron, 1912, Calif. M. & S. Reporter, Vol. S, p. 333.

Case 143. Kirmisson, 1912, Bull. et Mém. Soc. de Chir., Paris, Vol. 38, p. 164.

Case 144. Grondahl, 1912, Krist. Kirurg, p. 16.

Case 145. Northrop, 1912, Hahnemann Monthly, Vol. 48, p. 666.

Case 146. } through } Painetvin, 1912, Bull. et Mém. Soc. de Chir., Paris, Vol. 48, p. 25.

Case 152. Chepmell, 1913, Lancet, Vol. 1, p. 76.

Case 153. Scott, 1913, Railway Surg. Jour., Vol. 20, p. 54.

Case 154. Luxembourg, 1913, Münch. m. W., Vol. 60, p. 2759.

Case 155. Vorkuryeff, 1913, Khirurg. Arkh. Velya, Vol. 29, p. 379.

Case 156. Berárd, 1914, Lyon Méd., Vol. 122, p. 540.

Case 157. Flaherty, 1914, Ann. Surg., Vol. 59, p. 186.

Case 158. Gillette, 1914, N. Y. Med. Jour., Vol. 99, p. 1135.

Case 159. Law, 1914 (See above).

Case 160. Landry, 1914, N. Orl. M. & S. J., Vol. 67, p. 782.

Case 161. Nuzum, 1915, Journ. A.M.A., Vol. 64, p. 1238.

Case 162. Sheinberg, 1916, N. Y. Med. Rec., Vol. 90, p. 788.

- Case 163. Perthes, 1917, *Münsch. m. W.*, Vol. 64, p. 1340.
- Case 164. Durham, 1919, *Long Island Med. Journ.*, Vol. 13, p. 63.
- Case 165. Geinitz, 1919, *Beitr. z. Chir. Tüb.*, Vol. 123, p. 252.
- Case 166. Morone, 1919, *Clin. Chir. Milano N. S.*, Vol. 1, p. 918.
- Case 167. Schönbauer, 1920, *Wien. klin. Woch.*, Vol. 23, p. 180.

There have been nine cases of avulsion of the scalp at this hospital since 1872. In one case there was loss of consciousness for a short time. Several had pain immediately after the accident and one case cried out every time the dressings were done for several weeks. Periosteal defects were mentioned in two cases. Heterogenous grafts were used three times and were total failures. Autogenous grafts had more success as we came to the later periods, due to improvement in the technique. Thiersch and Reverdin were equally successful. In three cases, one or both eyebrows were torn off and in only two cases is a note made of hemorrhage. No mention is made of exfoliation of bone. One ear was partially torn off in two cases. Mention is made in only two cases of late retraction of the eyelids due to scar. In practically all the cases that were followed, there have been secondary ulcerations. Mention is made in only one case of headache occurring late, or of a sense of pressure. Though the literature mentions tetanus as a rare complication, this series had no serious infections. No plastic operations were attempted to cover the scalp, though some were employed to relieve contraction of the eyelids. In six cases, the scalp was completely avulsed. These six were all women who worked in factories and whose hair had been caught in revolving machinery. The three others were men who were injured, respectively, in a railroad accident, a fall from a scaffolding, and an elevator accident. With the men, the scalp was completely avulsed. Healing occurred in all three cases without grafting, though one of these cases was complicated by considerable sepsis. In the case of two of the women, the scalp was replaced, but in both instances it sloughed and grafts had to be employed. Wolfe grafts were apparently not attempted. There was one death in the series from pulmonary embolism and one case gave the picture of shock.

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- ¹ Haubold: *Jour. A.M.A.*, vol. 48, p. 1429.
- ² Keen: *Surgery*, vol. 1, p. 692.
- ³ Durham: *L. I. Med. Journ.*, vol. 13, p. 2.
- ⁴ Mellich: *Ann. Surg.*, vol. 40, p. 644.
- ⁵ Bevings: *Phil. Med. Journ.*, vol. 9, June 7.
- ⁶ Robinson: *Surg., Gyn., and Obst.*, vol. 7, p. 633.
- ⁷ Davison: *Jour. A.M.A.*, vol. 70, p. 1368.
- ⁸ Davis: *Ann. Surg.*, vol. 52, p. 721.
- ⁹ Law: *Surg., Gyn., and Obst.*, vol. 19, p. 229.
- ¹⁰ Müller: *Beitr. z. Klin. Chir. Tüb.*, vol. 94, p. 10

TRAUMATIC OSTEITIS OF THE WRIST.

BY MARK H. ROGERS, M.D., BOSTON.

THERE is a condition that involves one of the carpal bones of the wrist, either the semilunar or the scaphoid, which has not yet received sufficient attention so that it is known under any one name. This condition seems to be a very definite entity and has been described by two observers in careful and complete detail, namely, Preiser¹, who reports five cases in 1910, and Guie², who reports seven cases in 1914. Guie also reports 29 cases from other clinics, and gives a good bibliography, but the bibliography deals with other conditions of the wrist such as fracture. I have not met with any literature on the subject since that date, so that probably very few observations have been made. Kellogg Speed mentions the subject in his textbook on fracture, and this is about the only textbook that does call attention to it.

Preiser calls the condition a rarefying osteitis of an isolated carpal bone, and believes that it is the result of trauma. When he was studying the subject he made careful observations concerning the anatomy of the carpal bones, especially in relation to the nutrient artery, and he believes that a slight injury may block the nutrient artery and cause the absorption of the bone, which is the most prominent pathological condition. Guie considers the condition as essentially a compressed fracture, which is not recognized at first, with the secondary absorption of bone structure. This is somewhat analogous to a compressed fracture of the spine, or the so-called Kümmell's disease, in which the symptoms develop late and in which the x-ray shows a loss of substance of the cancellous bone six months after the original injury.

Two x-ray reports have suggested a similarity of this condition with the well-known Kohler's disease of the scaphoid of the foot in the x-ray findings, but Kohler's disease is confined to children and tends to normal recovery, while this condition is evidently most common in young adults, and probably does not recover spontaneously.

This condition is often mistaken and treated for such condition as tuberculosis, infectious arthritis or, if there is a traumatic history, fracture. The gradual onset without a clear-cut etiological background, and an x-ray that suggests a destructive process, certainly would lead one to consider tuberculosis as a very possible condition. Without a knowledge that there is such a condition as here described, it is certainly reasonable to suppose that we are dealing with a destructive bone disease. A case was recently examined, who had had two operations on the wrist, with removal of a semilunar bone, and a secondary operation for

removal of more bone, because there was a certain amount of stiffness of the wrist and because the x-ray shows what was called "bone disease." I am quite sure, from the history of the case and its course, that the case was similar to these reported cases, and that the surgeon was operating because he thought the bone was the seat of some kind of an infectious process.

The symptoms are rather clear-cut in my cases and correspond to Preiser's and Guie's cases. The onset of symptoms is very gradual, generally covering a period of a few months before they are thoroughly considered. There is a definite pain referred to the wrist-joint which is brought on by use and diminishes with rest. There is a slight amount of swelling which increases with use and with time. Localized tenderness is present and is quite definite in that it is directly over the bone involved. The limitation of motion is at first almost wholly in dorsiflexion of the wrist.

The amount of disability that these cases present is very definite. There is no question but that they have comparatively little trouble as long as they do not use the wrist, but just as soon as they return to a mechanical occupation, the symptoms recur and they are required to stop work. This corresponds very closely to the reported cases in the literature.

CASE 1. Examined at the Public Health Service Hospital at Boston. Age 23. Meehanic. Complains of swelling and pain of the wrist. About nine months preceding the examination he began to have trouble with the wrist, very

slight at first. Gradually the pain and disability have increased so that he is not able to work as a mechanic. During the first few months he was able to work part of the time, and a few days' rest would be sufficient to bring the wrist back to normal. For the last three months he has had continuous treatment by physiotherapy and rest, with the result that as long as he does not use the wrist, the pain and swelling are very slight, but both come back on use.

He states that two years previous to the onset of his present symptoms, while in service, he sprained his wrist. This was treated by the application of tincture of iodine, but no immobilization. It was quite evident that the injury was not considered of any consequence, because he kept on with his duties, and no x-ray was taken. He evidently worked continuously for a year after his discharge from service, although he says that his wrist was weak.

There is no history of gonorrhea nor other focal infection. The Wassermann test was negative. The examination is negative, except for the wrist-joint.

The wrist shows a slight swelling, especially over the dorsum of the wrist, extending towards the knuckle. No local heat. Tenderness to deep pressure over the head of the radius and scaphoid. The motions are free, except in dorsiflexion, which is distinctly limited and painful.



CASE 1.—Note the loss of bone substance of scaphoid.



CASE 2.—The semilunar shows a change in shape and substance.

The x-ray shows a pathological process involving the scaphoid. There is loss of substance of the central portion and a "crinkled" appearance of the contour.

CASE 2. J. B. Male. Age 25. Seen at the Massachusetts General Hospital. Gradual onset of pain in the right wrist, of six months' duration, which at the present time is severe enough so that he cannot work as a mechanic. He knows of no definite injury, although he says that he has often hurt his hand playing semi-professional ball. Close questioning failed to make any connection between a single injury and his present condition.

The examination shows a wrist slightly

army. There is a history of injury, but not a very definite one, and not directly connected with the present trouble. As long as he does not use his wrist he has no pain, but just as soon as he works there is a definite increase in the symptoms of pain, swelling and limitation of motion.

The examination is negative except for the wrist. There is a slight amount of swelling of the wrist-joint, with localized tenderness over the semilunar, and limitation of motion.

The x-ray shows a condition similar to that of Case 2.

CASE 4. M. Age 20. Female. Occupation, housework. Examined on the Orthopedic Ser-



CASE 3.—Note the size of the semilunar.

swollen, with limitation of motion, especially dorsiflexion, and tenderness over the semilunar. There is no focal history. The Wassermann test is negative.

The x-ray presents a lesion of the semilunar. It is smaller in appearance, irregular in outline, and there is a change in the internal structure of the bone. There is also a loose fragment of bone at the base of the first metatarsal, as if there had been a fracture.

CASE 3. F. R. Male, 27. Seen at the Public Health Hospital. Gradual onset of symptoms of pain and stiffness of the wrist. The symptoms developed after discharge from the

vice of the Massachusetts General Hospital. For about six months she has been complaining of soreness of the wrist, especially on lifting and heavy work. There has been very little swelling, but there is a definite localized tenderness over the semilunar. There is some restriction of motion, especially dorsiflexion. It is impossible to obtain any history of injury in this case.

The x-ray shows a typical "crinkled" appearance of the semilunar, making it appear smaller than the normal, with a changed appearance of the internal architecture.

The relation of a definite trauma in these four cases has not been very clear-cut or con-



CASE 4.—The semilunar is smaller than normal and irregular in outline.

tinuous. When we have the word of the patient that he sprained his wrist, there immediately has been a period of time practically without symptoms, and then a gradual development of symptoms. Guie was able to obtain a history of trauma in most of his cases, but he calls attention to the late development of symptoms. In Case 4 there was no history of an injury. In Case 2 it is reasonable to suppose that there has been an injury, on account of the evident old fracture of the first metacarpal, but he cannot place any connection with his present condition. Cases 1 and 3 certainly claimed an injury, but these were service cases, and it is natural for them to make the most of any previous injury.

The three semilunar and the scaphoid were excised, using the dorsal incision. All the specimens were examined pathologically and no evidence of tuberculosis was found. Also, on operation, there was no evidence of any pathological process in the bones or in the soft parts. A good deal of care was used in removing the semilunar in Case 4, not to pick up the bone with forceps, so as to have a specimen that was not crushed. The bone was sectioned *in toto*, and we were able to obtain a good picture of the bone structure. In the first three cases, attention was paid only to the question of the possibility of tuberculosis or osteomyelitis. A section of Case 4 shows that the cortex is definitely thinned and that the medulla is composed of much more fat tissue than the normal and that there is a loss of the normal bony trabeculae. There was no evi-

dence of tuberculosis or chronic inflammatory tissue.

The two cases at the Public Health Hospital were treated for at least two months by conservative measures, physiotherapy and rest. Just as soon as they began to make use of their wrists as they would in their normal work, the symptoms recurred. This fact is reported by Guie, who states that the process is difficult to treat, because of the length of time during which disability lasts, and because of the recurrence of symptoms.

For this reason it seems best to excise. These cases are too few to be too definite about treatment, but I believe that this is a necessary step to take. Of course, an excision of the affected bone is likely to be done, because it is considered possible that we are dealing with disease, most likely tuberculosis. The question really is, whether the result is better after an excision than we can get by prolonged partial fixation. It is probable that there is a slight loss of motion following this operation, although if the work is done very carefully, without disturbing the rest of the joint, and by getting the bone out intact, so as not to leave part to form new bone, we ought to get good results. I know the end-result of Cases 2 and 4. Case 2 has lost a few degrees of both plantar and dorsiflexion, but seems to have a serviceable wrist. Case 4 appears to have a perfect wrist, as far as motions are concerned, and function is perfect. This case was operated upon early relative to the duration of symptoms, and has the best result.

As far as the name to be applied to this condition is concerned, it is rather difficult to apply one that gives a proper picture. It is an absorption of the bone structure, probably secondary to trauma, and therefore I rather like the name, if it were not so clumsy, of Traumatic Osteitis of the Wrist.

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THE TRANSPERITONEAL CERVICAL CESAREAN SECTION. REPORT OF CASES.

BY LOUIS E. PHANEUF, M.D., F.A.C.S., BOSTON.
AND
JOSEPH G. HEGARTY, M.D., BOSTON.

ON December 20, 1919, we had the opportunity to see, at St. Elizabeth's Hospital, a primipara 23 years old, at term; she gave a history of severe uterine hemorrhage with pain. Her family physician had diagnosed the condition as placenta previa and had packed the vagina before sending her to the hospital. On admission the pack, which was found to be saturated with blood, was changed by the house

officer in charge. Later, a manual dilatation of the cervix was attempted, without success, because of the marked rigidity of the organ.

When seen, a few hours after admission, the patient was blanched, her pulse was of poor quality and ranged between 140 and 150 in rate, the uterus was tense and the fetal heart tones were not heard. We made a diagnosis of abruptio placentae and felt that the parturient should be delivered at once.

The vaginal route was discarded because the size of the child made vaginal cesarean section undesirable; the former unsuccessful attempt at manual dilatation precluded repeating this procedure: while the gravida's condition contraindicated the bag and the necessary hours for dilatation by this method. The classical cesarean section was not considered because of the danger of peritonitis following the vaginal examinations, the vaginal tamponade and the attempt at manual dilatation of the cervix.

The transperitoneal cesarean section was thought to be the operation which would give the patient the best possible chance and it was performed as soon as she could be prepared. The recovery from ether was satisfactory, the puerpera was free from discomfort, she had no distention and no sign of peritoneal irritation. Her evening temperature remained at 100. On December 29, 1919—nine days after operation—the uterine incision broke down and an ounce of thick, green pus escaped through the lower end of the abdominal incision. The sinus was irrigated with salt solution, the fluid escaping for the most part through the cervix and vagina. The amount of pus from the uterine cavity at first increased but after a few days began to subside and the sinus closed gradually.

On January 21, 1920, at the time of the patient's discharge, the following note was made: "The incision is well healed throughout, there is no induration or tenderness. Vaginal Examination—The cervix is closed and in good position, the uterus is small, in good position, and freely movable; the adnexa are normal, the parametria are non-sensitive, and there are no masses or areas of tenderness in the pelvis."

The impressive fact about this case was that while the uterus was septic and draining pus freely, through the abdominal incision, no sign of peritoneal involvement was apparent, the bowels and bladder functioned normally, the patient's appetite was good and she was on a solid diet.

Later, in the Carney Hospital Clinic, we had the opportunity of comparing the results of the classical or corporeal cesarean section and the transperitoneal cervical cesarean section on two patients operated on a day apart. The first patient, a young primipara in excellent

health, was followed throughout her pregnancy at the Prenatal Clinic of the hospital; she was seen every two weeks, and at no time were there any complications. She was operated on at term for a pelvic indication, a classical cesarean section being done; the abdominal incision was made above the umbilicus and the uterine incision in the fundus. She had had about two hours of labor, or the time necessary for her coming to the hospital and be prepared for operation after the onset of labor; her pulse was 80 on admission, she had had no vaginal examinations during her observation in the clinic and none before operation. This patient was then in excellent physical condition, was not examined vaginally, had intact membranes and was operated on at the onset of labor. She left the table in good condition, made a good ether recovery, and although she never was in a serious condition, she had a rather stormy convalescence. The temperature went as high as 101.6 and the pulse remained at 140 for 48 hours; she had considerable peritoneal shock and partial paralytic ileus; the latter was controlled by frequent enemata after three days; from then on, the puerperium was uneventful and she was discharged well.

The second patient, a primipara, 40 years old, was admitted to the Carney Hospital with a complete placenta previa and a moderate hemorrhage. The abdominal examination revealed a pregnancy at term; she had been examined vaginally in her home before being sent to the hospital (she stated that the physician who had examined her had not worn gloves); she had recently recovered from influenza, was emaciated and in very poor physical condition. Because of her age and her great anxiety for a living child, the transperitoneal cesarean section was chosen rather than the bag and delivery through the parturient canal. Her convalescence was that of a normal delivery; the temperature remained normal, the pulse never went above 80, there was no distention, catheterization was not necessary, and the bowels moved normally. The puerpera nursed her child and was discharged well.

The convalescence of the transperitoneal operation is practically that of a normal delivery. The patients are free from ileus and distention, the temperature and pulse remain near the normal line, and no signs of peritoneal shock are observed. There are surprisingly few bladder symptoms, and catheterization is the exception rather than the rule.

The operation was devised by Veit and Fromme, and by Barton Cook Hirst working independently; the latter has popularized it in America. Hirst, in his *Atlas of Operative Gynecology*, states: "This method is comparatively simple; and the result has proved (in my experience) that it is reliable, preventing infection of the peritoneal cavity, especially

during puerperal convalescence, which is the chief danger of cesarean section performed upon the presumably infected woman, the infection of the endometrium in such cases spreading directly through the uterine wound to the peritoneal surface and rapidly causing a general septic peritonitis."

Because of more comfortable convalescence and the consequent lessened risk of peritonitis, resulting from extraperitoneal approach, we have adopted it as the operation of choice when a cesarean section is indicated.

TECHNIC OF OPERATION.

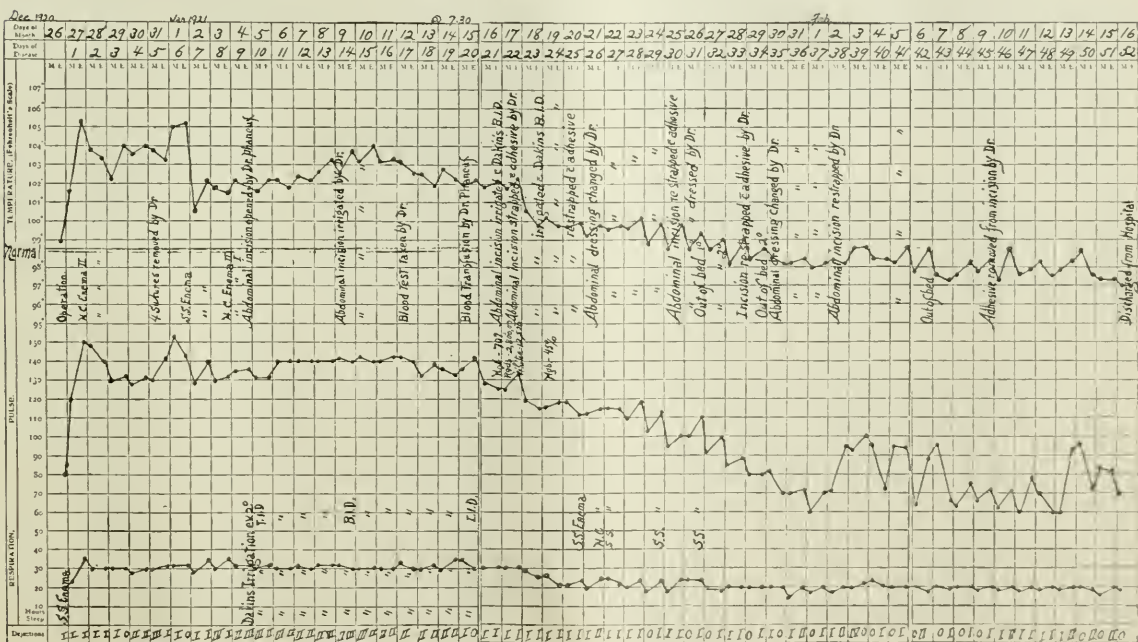
The abdomen is prepared and the patient is catheterized; she is then etherized and placed in a moderate Trendelenburg position. The operator stands on the left as in the average pelvic operation; the incision which is median and about five inches long, starts at the symphysis and extends towards the umbilicus; the parietal peritoneum is opened in the median line, exposing the bladder and the lower uterine segment (intestines are practically never seen). The uterine peritoneum just above the bladder, where it is loosely attached, is incised to the uterine muscle; the index finger is introduced in the opening and the bladder is separated from the uterus; the finger is then directed upwards and the peritoneum is separated from one side of the uterus. the procedure is repeated on the opposite side. The visceral peritoneum is then incised in the median line to within an inch of the upper limit of the incision in the parietal peritoneum, and the two layers of peritoneum—parietal and visceral—are united by carefully applied inter-

rupted catgut sutures, six to eight in number. The bladder is held under the symphysis by means of a retractor and an incision is made in the cervix (an incision large enough to deliver an ordinary-sized child may be made entirely in the cervix, without encroaching on the corpus); the child is usually delivered by the vertex, using the obstetric forceps to assist in the delivery. The placenta and membranes are extracted, a large strip of gauze is packed in the uterus, and 1 cc. of pituitary extract and of aseptic ergot are administered. The cervical incision is closed with interrupted sutures of No. 2 chromic catgut, and the strip is removed before tying the sutures: the uterus is usually contracting well at this time. After sponging out the uterine incision, the peritoneal layers are further approximated by a continuous suture of No. 0 chromic catgut. As may be seen, the uterine incision is now entirely out of the general peritoneal cavity, and covered almost entirely by the bladder; the conjoined layers of peritoneum are united in the median line by two or three interrupted catgut sutures, and the abdominal wall is closed in the usual manner.

The layers of peritoneum are adherent in the course of a few hours; uterine sepsis usually is apparent at the end of twenty-four to forty-eight hours, as shown by the rise of temperature and pulse, at this time, in infected cases. If infected, lochia seeps through the uterine incision; it can be drained readily through the lower end of the abdominal wound without coming in contact with the general peritoneal cavity.

Cases No. 1. No. 16. No. 18. No. 19, in which

CASE 16.—Clinical Chart. Date admitted, Dec. 26, 1920.



the uterine incision broke down and in which a sinus existed between the vagina and abdominal wall with free discharge of pus from the uterine cavity, seem to prove that the operation offers protection against general peritonitis. Case No. 16, whose chart is shown elsewhere, seems to especially substantiate this.

Further, since the cervix is the non-contractile part of the uterus, and since immobilization of a part is an essential in its healing, it seems logical that an incision in the cervix should heal more readily than one in the fundus or the body of the uterus where the opposed surfaces are apt to be disturbed by the contraction and relaxation of the organ following delivery. This should tend to decrease the possibility of rupture in subsequent pregnancies.

In certain cases where previous pelvic operations had been done, it was not always possible to separate the visceral peritoneum readily because of adhesions; in this class of patients the technic described by Krönig has been followed.

The patient is placed in the Trendelenburg position; the abdominal incision is made as in the transperitoneal operation; the peritoneum is incised where it is loosely attached and the bladder is separated as in a panhysterectomy; it is now held under the symphysis by a retractor and a cervical incision is made; after the delivery of the child, the placenta and membranes are extracted, and the incision is closed with interrupted sutures of No. 2 chromic catgut; the bladder edge is readily sutured to its original position by means of a continuous catgut suture and the abdomen is closed in the usual way.

The incision in the cervix is entirely covered by the bladder, and should infection occur, drainage may be easily established through the cervix or by an anterior vaginal colpotomy.

The cases in the following table are reported from our clinics at the Carney and St. Elizabeth's hospitals, as well as from our private practices.

There were forty cervical cesarean sections in this series, thirty-three transperitoneal, and seven Krönig operations. The latter cases, with the exception of No. 2, were clean; they were free from complications and had uneventful recoveries. Case No. 2 developed pulmonary embolism on the table; this was followed by pneumonia, and although she was critically ill for a number of days, she made a complete recovery and was discharged well.

Of the thirty-three transperitoneal operations, there were nine septic, twenty-one clean cases, and three deaths. The puerperium in the clean cases was as near ideal as it can be following an abdominal section. These patients were free from peritoneal shock and paralytic ileus, and the bowels, as well as the bladder, functioned normally. The convalescence, as a

whole, resembled more closely that of a normal delivery than that of a cesarean section. Two of the clean cases had complications—Case No. 3 developed a right mammary abscess late in the puerperium, while Case No. 10 had a severe pyelitis on the tenth day.

The nine septic cases may be divided into three groups. The first includes Cases No. 12 and No. 25, where there was superficial infection and breaking down of the abdominal incision. Case No. 25, in addition, developed a broncho-pneumonia on the fifteenth day. All complications responded readily to treatment. The second group consists of Cases No. 14, No. 17, and No. 20, where we found a mild uterine infection without abdominal symptoms, while the third group consists of Cases No. 1, No. 16, No. 18, and No. 19. In these patients there was a severe uterine infection with breaking down of the uterine incision and free discharge of pus through the abdominal wall. Drainage was easily established, a drainage tract being formed between the abdominal wall and the vagina, so that in irrigating these wounds, part of the fluid escaped through the vagina and part came back through the abdominal opening. These cases were irrigated with Dakin's solution every four hours; the incisions healed rapidly, and they were discharged well. Had these patients been operated on by the classical method, without a ready exit for the purulent discharge, we are convinced that they would have died of septic peritonitis.

Case No. 16 was one of extreme sepsis, the whole cervical incision broke down, and one could introduce the sterile fingers through the abdominal opening into the fundus as well as into the cervix. Her hemoglobin had come down to 30 per cent; after transfusion of 600 cc. of blood, she gradually gained, and was discharged well on the fifty-second day. The chart which follows gives an idea of the extent of the sepsis.

These cases tend to prove that the union of the peritoneal layers in the transperitoneal operation offers a definite protection against peritonitis. While the four cases had broken down uterine incisions and a free purulent discharge from the uterus, no sign of peritoneal involvement was apparent, the patients were eating well and were comfortable.

There were three maternal deaths in this series: the first case, No. 24, died of pulmonary embolism on the fifth day; the second case, No. 29, died of acute dilatation of the stomach on the fourth day, while the third case, No. 33, died of hemorrhage and shock because of a prematurely detached placenta. These deaths can hardly be attributed to the operation, since the causative factors in the first two may occur after any laparotomy, while abruptio placentae, with hemorrhage, is one of the grave accidents of pregnancy. All the septic cases recovered

TRANSPERITONEAL CERVICAL CESAAREAN SECTIONS.

No.	Name	Para.	Date	No. of Sections	Indications	Convalescence	Sex of Child	Condition on Discharge. Mother Baby	
1	Mrs. M.E.S.	I	Dec. 20-19	First	Abruptio Placentae. Hemorrhage. Rigid Cervix.	Septic Utero-Abdominal Fistula.	Male	Well	Stillborn
2	Mrs. M.C.	II	June 4-20	First	Central Placenta Previa	Clean. Uneventful.	Male	Well	Well
3	Mrs. M.B.D.	I	June 12-20	First	Disproportion. Rigid Cervix.	Clean. Uneventful. Breast Abscess Right.	Male	Well	Well
4	Mrs. J.R.	I	June 13-20	First	Pelvic. Floating Head. Rigid Cervix.	Clean. Uneventful.	Male	Well	Well
5	Mrs. M.D.	I	June 24-20	First	Eclampsia. Rigid Cervix.	Clean. Uneventful.	Female	Well	Well
6	Mrs. M.L.	I	July 17-20	First	Justo-minor Pelvis. Toxemia.	Clean. Uneventful.	Male	Well	Well
7	Mrs. E.N.	I	July 22-20	First	Justo-minor Pelvis. Floating Head.	Clean. Uneventful.	Male	Well	Well
8	Mrs. M.S.	II	July 31-20	Second	Previous Classical Cesarean Section.	Clean. Uneventful.	Male	Well	Stillborn Macerated.
9	Mrs. F.F.	I	Aug. 24-20	First	Complete Placenta Previa.	Clean. Uneventful.	Male	Well	Well
10	Mrs. E.G.	I	Aug. 26-20	First	Justo-minor Pelvis. Floating Head.	Clean. Pyelitis.	Female	Well	Lived Twelve Hours
11	Mrs. N.M.	I	Nov. 12-20	First	Complete Placenta Previa.	Clean. Uneventful.	Male	Well	Well
12	Mrs. E.B.	I	Nov. 17-20	First	Complete Placenta Previa. Packed Six Times.	Superficial Sepsis	Male	Well	Well
13	Mrs. R.L.	I	Dec. 8-20	First	Eclampsia.	Clean. 36 P.P. Convulsions.	Female	Well	Well
14	Mrs. M.C.	I	Dec. 15-20	First	Disproportion.	Temp. 101 for 8 days. No abdominal symptoms.	Male	Well	Well
15	Mrs. I.B.	I	Dec. 23-20	First	Floating Head. Large Child.	Clean. Uneventful.	Male	Well	Well
16	Mrs. J.M.	I	Dec. 26-20	First	Justo-minor Pelvis. Large Child. Dry Uterus. 36 hours in labor.	Septic Utero-abdominal Fistula.	Female	Well	Well
17	Mrs. M. St.G.	I	Jan. 2-21	First	Disproportion. Contracted Outlet.	Mild uterine infection. No abdominal symptoms.	Male	Well	Well
18	Mrs. K.O.	I	Feb. 9-21	First	R.O.P. Floating Head. Long Labor. Vaginal Examinations.	Septic Utero-abdominal Fistula.	Male	Well	Well
19	Mrs. M.D.	I	Feb. 9-21	First	Justo-minor Pelvis. Floating Head.	Septic Utero-abdominal Fistula.	Female	Well	Well
20	Mrs. E.B.	I	Feb. 28-21	First	Disproportion.	Temp. 101-102 for 4 days. No abdominal symptoms	Female	Well	Well
21	Mrs. A.C.	I	Mar. 4-21	First	Disproportion. Eclampsia.	Clean. Uneventful.	Male	Well	Well
22	Mrs. J.I.	I	Mar. 7-21	First	Flat Pelvis. Long Labor.	Clean. Uneventful.	Female	Well	Well
23	Mrs. A.K.	II	Mar. 26-21	Second	Previous Section for Abruptio Placentae and Spontaneous Rupture of Uterus.	Clean. Uneventful.	Female	Well	Well
24	Mrs. M.A.	VII	April 7-21	First	Spondylolisthetic Pelvis. Six Stillborns following High Forceps.	Died of Pulmonary Embolism on 5th day.	Male	Died	Well
25	Mrs. M.W.	II	June 14-21	Second	Previous Classical Cesarean Section.	Superficial sepsis of incision. Broncho-Pneumonia	Female	Well	Well
26	Mrs. J.K.	X	June 14-21	First	Complete Placenta Previa. 3 Vaginals. Packed at home.	Clean. Uneventful.	Male	Well	Well
27	Mrs. A.C.	I	June 27-21	First	Disproportion. 16 hours in labor.	Clean. Uneventful.	Female	Well	Well
28	Mrs. J.C.	I	June 29-21	First	Cardiac Disease. Contracted Outlet	Clean. Uneventful.	Male	Well	Well
29	Mrs. M.S.	I	July 15-21	First	41 years old. Floating Head 16 hours in labor.	Died of acute gastric dilatation on 4th day.	Female	Died	Well
30	Mrs. J.H.	I	Aug. 23-21	First	Disproportion.	Clean. Uneventful.	Female	Well	Well
31	Mrs. S.F.	I	Nov. 3-21	First	Breech R.S.P. Justo-minor Pelvis.	Clean. Uneventful.	Male	Well	Well
32	Mrs. L.K.	I	Dec. 27-21	First	Disproportion.	Clean. Uneventful.	Female	Well	Well
33	Mrs. L.M.	I	Jan. 8-22	First	Abruptio Placentae. Disproportion.	Died of hemorrhage and shock the same day.	Male	Died	Well

KRÖNIG CERVICAL CESAAREAN SECTIONS.

No.	Name	Para.	Date	No. of Sections	Indications	Convalescence.	Sex of Child	Condition on Discharge.	
1	Mrs. B.O'M	I	Feb. 19-21	First	Disproportion. Previous Pelvic Operation. Adhesions.	Clean. Uneventful.	Male	Mother Well	Baby Well
2	Mrs. M.B.	III	Mar. 17-21	Third	Two Previous Classical Cesarean Sections.	Pulmonary Embolism During Operation. Pneumonia.	Male	Well	Well
3	Mrs. M.E.S.	II	June 22-21	Second	Previous Transperitoneal Cesarean Section. (Septic)	Clean. Uneventful.	Female	Well	Well
4	Mrs. M.Q.	I	Aug. 23-21	First	Large Dermoid Cyst in Pelvis.	Clean. Uneventful.	Male	Well	Well
5	Mrs. D.M.	I	Sept. 6-21	First	Floating Head at Term. Large Child.	Clean. Uneventful.	Male	Well	Well
6	Mrs. N.W.	VII	Nov. 27-21	First	Extensive Plastics and Suspension. Large Child. Sharp Promontory.	Clean. Uneventful.	Male	Well	Well
7	Mrs. M.C.G.	IV	Dec. 13-21	First	Central Placenta Previa. Previous Pelvic Operation. Adhesions.	Clean. Uneventful.	Male	Well	Well

and left the hospital with healed incisions. Two babies were stillborn, and one lived twelve hours.

Case No. 1 of the transperitoneal series (septic, December 20, 1919) came to a second operation at term on June 22, 1921. Because of the adhesions to the cervix following the sepsis, the Krönig cervical section was performed, and her operation forms the third of the series of seven treated by this method. Case No. 13 is now seven months pregnant and has had no complications during the present pregnancy.

CONCLUSIONS.

1. The transperitoneal cesarean section seems to afford protection against septic peritonitis.

2. There is less shock, as the intestines are not handled.

3. There is less bleeding.

4. The mother has a much easier puerperium.

5. There is better healing since the incision is in the cervix, the non-contractile part of the uterus.

6. There is less danger of rupture in subsequent pregnancies.

7. It does not contraindicate the test of labor.

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GLIOMA OF LUMBAR CORD: CASE REPORT.

By DONALD S. ADAMS, M.D., WORCESTER, MASS.

[From the Surgical Service of Memorial Hospital.]

H. F., male, white, married, aged 50 years. Wife and one daughter living and well. Patient sent to hospital by family physician, with diagnosis of hypertrophied prostate. Chief Complaint—Pain in lower back and inability to pass urine. Nothing of interest in family history. Past history negative. Health always good. Had diseases of childhood. Denies venereal diseases. Present Illness—In April, 1921, while carrying out his duties as a railroad yardman, began having pain in lower back, more marked over region of right sacroiliac articulation, which was worse at night, especially when lying on right side. While working, no discomfort noted unless body was bent from the waist. In the patient's own words, "There is a tight feeling all through lower abdomen and back." Received various forms of

treatment without relief. In August, 1921, condition rapidly became worse. Pain of same character, but more marked, causing insomnia. Noted loss of weight, but exact amount not known. Began to have difficulty with urination, especially in morning, when several hours would elapse before bladder could be emptied. First week in September, was seen by orthopedist, who applied plaster jacket. This made matters worse; pain was not relieved, and could not find a comfortable position to rest. Unable to void. Had to be catheterized. Patient had given up work the last of July. Admitted to Memorial Hospital September 21, 1921. Service of Dr. Homer Gage.

Physical Examination: Poorly nourished man sitting in chair; somewhat dyspnea, due to plastic jacket. Head and Neck—Eyes react to light and accommodation very sluggishly. Only intense light invokes slight diminution in size of pupil. Extra ocular movements normal. Neck shows no enlargement of lymph-nodes or thyroid. Ears, nose and throat normal. Teeth

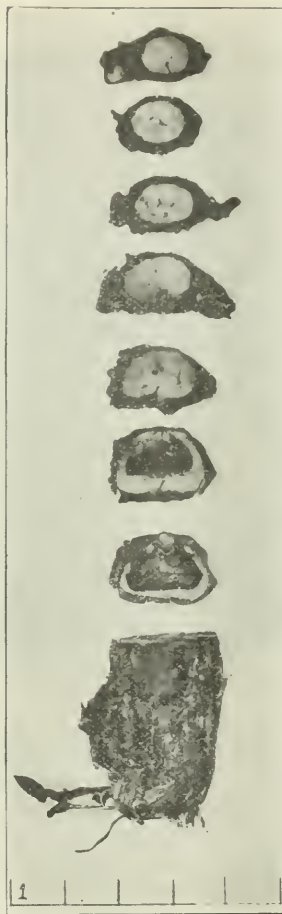
—Upper, false; all lower teeth gone except a few old roots. Thorax (after removal of jacket)—Symmetrical but somewhat emaciated. Heart normal in size and position. No irregularity; sounds normal. Lungs—Breath sounds normal; no râles. Abdomen—Scaphoid and flaccid. No scars, no masses, no palpable organs, no areas of tenderness. Percussion disclosed the presence of a distended urinary bladder. Genitalia—Penis and scrotal contents normal. Rectal examination discloses prostate small in size and not tender. Spine—No kyphosis, lordosis, or scoliosis. No areas of tenderness. Lower Extremities—Nothing remarkable, except for bilateral atrophy of calves and bilateral toe-drop. Reflexes—Knee-jerks, right, very sluggish; left, active. Babinski—Right, negative; left active. Clonus—Absent on both sides. Cremasteric—Present feebly on both sides. Kernig—Absent on both sides. Sensory Disturbances—None. Sphincters—Anal under control. Urethral—Spastic; unable to make patient void naturally by usual means. Treatment—Removal of jacket (resulting in great relief to patient), application of self-retaining catheter; urotropin by mouth; daily bladder irrigations.

September 24, 1921—Seen by Dr. Benjamin Burley, in consultation for Dr. Gage. Found evidence of lumbar nerve root and, possibly, spinal cord irritation. Advised lumbar puncture.

September 28, 1921—Spinal puncture done under local anesthesia and 5 cc. of amber-colored fluid withdrawn. Laboratory report stated fluid was largely serum, which clotted on standing; rich in globulin; no cells seen. Wassermann test negative. Blood Wassermann negative. Urine negative, except for occasional red and white blood cells. Blood examination shows 6,500 white cells and hemoglobin 80 per cent. X-ray of spine shows some deviation of lumbar spine to the right, with old bone destruction on left side of fifth lumbar vertebra; cause unknown. No evidence of tumor made out.

October 5, 1921—Patient feels more comfortable. Catheter out and patient voids normally. No change in physical signs. Lumbar puncture gave same type of fluid noted before; same laboratory findings. Patient ran a temperature varying between 100° F. and 101° F. over a period of three days. Has been normal for past week. Patient able to be up and about; walks well, although hindered slightly by toe-drop. Considering fact that he was feeling better and voided normally, was discharged to care of family physician, relieved.

On October 18, patient again returned. Chief complaint, on re-admission, was same type of pain, confined to back. No change in physical signs and still could void normally. Potassium



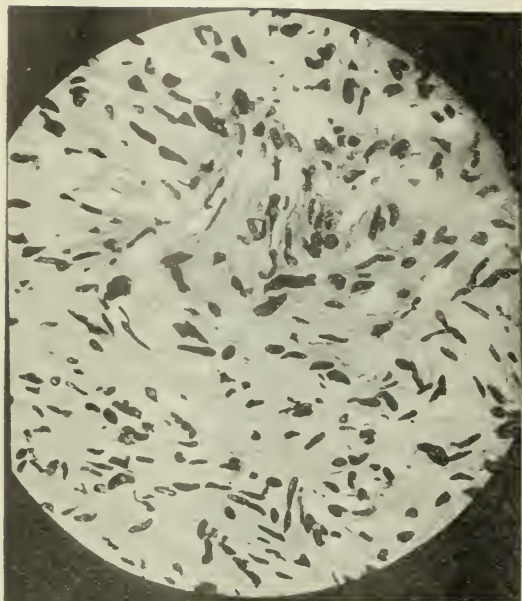
Appearance of gross specimen in cross-section at various levels, from normal dorsal cord to involved lumbar region.

iodide was ordered in large doses, and salicylates given for pain. The back was baked twice a day, with apparent relief. During the remainder of his second stay, the temperature and pulse charts were normal. Again discharged, relieved, November 9, 1921.

Third and final admission November 25, 1921. Temperature, pulse and respiration normal. The interval history, as recorded by the interne, covers the ground satisfactorily. For a few days after leaving the hospital, patient felt better, but pain began again after this, and gradually became worse, preventing patient from sleeping. Pain is constant and dull in nature, beginning in lumbar region, with occasional attacks of sharp pain shooting down both legs to knees—most marked on the left. Pain intense in lower lumbar region on movement at hip-joint. There has been no difficulty in voiding.

Physical examination disclosed no changes.

Clinically, the pulse rate showed an increase—average rate 100 after a few days in hospital. Urine examination, normal; renal function, 40 per cent.; Blood Picture—W. B. C., 4,600; R. B. C., 4,208,000; smear showed no pathology; Hgb., 80 per cent.; Wassermann (blood) nega-



Microphotograph of glioma cells.

tive; spinal puncture again gave same findings, with negative Wassermann. On November 30, 1921, Dr. Burley again saw patient and made diagnosis of tumor of lumbar cord, at the same time advising laminectomy at level of first lumbar vertebra. Dr. Gage, considering the fact that patient was getting progressively worse, was not being benefited by conservative measures, and was willing to accept operation, decided to act upon Dr. Burley's suggestion.

Operation, December 14, 1921. Ether anesthesia. Operator, Dr. Homer Gage. Linear incision from lower dorsal to fourth lumbar vertebra. Erector spinae muscles separated from bony attachments and fascia divided in midline. Bleeding controlled and laminae removed over first, second and third lumbar region, exposing cord. The overlying dura was bluish in color, tense and protruding; it was incised in its long diameter, coverings laid open perfectly, and a gelatinous fluid escaped—a substance identical to that recovered on lumbar puncture. Caudal pathology at once presented itself in the form of multiple cysts, varying in size from a pea to a good-sized grape, involving the terminal nerve filaments. One small solid tumor also made its appearance. Several cysts and the solid tumor were removed and saved for examination. Further exploration was contraindicated, due to patient's condition. The wound was closed, leaving the dura open and a small rubber drain intact. Fair ether recovery.

The following notes will show the post-operative course:

December 15, 1921—Condition fair; temperature 98, pulse 120, respiration 20. Is taking

fluids well. Catheterized. Operation has not affected sensory or motor tracts.

December 17, 1921—Patient has failed rapidly in last 48 hours. Has been catheterized twice a day. Dressing changed, wound found to be in good condition. Drain removed. Permanent catheter applied. Patient is vomiting constantly and is not retaining Murphy drip. Pulse 150, and only fair quality. Stimulation hypodermically. Temperature 100.5.

December 18, 1921—Patient expired. Autopsy granted, to be confined to removal of spinal cord.

Report of Dr. Roger Kinnicutt: Cord—The lumbar enlargement is greater than normally found and at the lower portion is a friable, red tumor mass apparently infiltrating the cord. Histological report—Tumor consists of masses of oval cells, probably atypical neuroglia cells, in a rather slight connective tissue stroma. Scattered through the tumor are irregular hemorrhagic areas. Diagnosis—Probable glioma.

The above case is of interest because, although a fatality, it was complete. The neoplasm was irremovable. Involving the cord from the second lumbar segment down, it invaded the anterior horns, giving chiefly motor symptoms. The posterior horns being less involved, few sensory disturbances were elicited.

The fluid obtained at lumbar puncture gave an example of Froin's syndrome. The latter is the appearance of a straw-colored spinal fluid, rich in xanthochromatin and protein, coagulates quickly on standing, and presents a low cell count. It is frequently, but not invariably, associated with tumor, for any mechanical block of the spinal arachnoid will give rise to these findings.

I desire to thank Dr. Homer Gage for the privilege of reporting this case.

Current Literature Department.

ABSTRACTORS.

GERARDO M. BALBONI
LAURENCE D. CHAPIN
AUSTIN W. CHEEVER
ISADOR CORIAT
ERNEST M. DALAND
RICHARD S. EUSTIS
ROBERT M. GREEN
JOHN B. HAWES, 2d
JOHN S. HODGSON

CHARLES H. LAWRENCE
HERMAN A. OSGOOD
FRANCIS W. PALFREY
EDWARD H. RISLEY
WILLIAM M. SHEDDEN
GEORGE G. SMITH
JOHN B. SWIFT, JR.
WILDER TILESTON
BRYANT D. WETHERELL

FRED S. HOPKINS

AUSTRIAN CANCER STATISTICS.

PELZER, in a continued article (*Wien. Klin. Woch.*, Feb. 9-16-23, 1922), reports the statistical results of a systematic questionnaire investigation by the Austrian Society for the Study and Prevention of Cancer, particularly with reference to uterine carcinoma.

[R. M. G.]

TREATMENT OF CHOLERA.

CHATTERJEE (*Ind. Med. Gazette*, Jan., 1922) reports results in 97 cases of cholera treated by a modification of the method advocated by Sir Leonard Rogers in India. Of the 97 cases, 77 were cured and 20 died—a mortality of only 20.5 per cent. At the beginning sodium bicarbonate solution (two drachms to the pint) was used for intravenous injection. This was followed by Rogers' hypertonic solution. The first pint of pure alkaline solution prevents irritation of the lungs, which sometimes follows a saline injection; it removes acidosis to a certain extent more quickly than the Rogers hypotonic solution (soda bicarb. gr. 160, sod. chloride gr. 60 to the pint). Fractional doses of calomel check the vomiting quickly (gr. $\frac{1}{8}$ doses every half hour). Potassium permanganate is avoided as it has been found to increase vomiting. When intravenous injection is interfered with by vasomotor disturbances, hypodermic injection of pituitrin 1 c.c. overcomes the difficulty. [L. D. C.]

STRICTURE OF THE URETHRA IN WOMEN.

WILLIAM E. STEVENS (*California State Journal of Medicine*, Feb., 1922).—Stricture of the urethra in women is a condition which is very often overlooked, although it may be responsible for marked functional and organic disorders in the genito-urinary tract of this sex. Herman of London, following the examination of 55 women without urinary symptoms, concluded that the normal size of the female urethra is F 29, a little less than 10 millimeters. Van de Warker expressed the opinion that a urethra from F 23 to F 28 should be considered normal. Examination of 114 patients at the Stanford Women's Clinic disclosed the fact that only 18, or about 16 per cent., had never suffered from symptoms referable to the urinary tract. Following urethral calibration in these 18 cases, the author found the average size of their urethra to be F 26, or a little less than 9 millimeters. As to symptoms, frequent urination is the most common. It occurs in over 85 per cent. of the author's clinic and private cases. Subjective symptomatology was not taken into consideration in the patients confined in the detention ward of the San Francisco Hospital, as many of these deny disability, hoping to be released as soon as possible. Next to this symptom, pain referred to the urethral or bladder regions is the most prominent symptom. This symptom occurs in 64 per cent. of the cases. Burning or smarting is present in 26 per cent., urgency in five per cent., and difficulty, constant desire to urinate, partial incontinence, dribbling and retention of urine were each present in two and a half per cent. of the patients. Residual urine is seldom found except in the presence of very tight strictures. The diagnosis is best made by means of the olive-tipped bougie. A urethratome or sound is much less reliable, as strictures usually yield to slight pressure, and consequently higher readings result from use of the latter instruments. The majority of urethral strictures should be treated by means of gradual dilatation, absorption of the constricting exudate being best promoted by this procedure.

Dr. Stevens' conclusions are as follows:

Stricture of the female urethra is relatively common, and consequently calibration of this organ should be part of the urological examination of every woman and child complaining of symptoms referable to the genito-urinary tract.

Strictures of the female urethra respond readily to proper treatment, and their early detection will prevent pathological lesions of the upper urinary tract secondary to this condition.

FINAL REPORT ON FRACTURES OF THE SPINE IN RELATION TO CHANGES IN KIDNEY AND BLADDER FUNCTION

PLAGGEMEYER, H. W. (*Journal of Urology*, Sept., 1921).—Two years ago 20 cases of shell fracture of the spine, with observations on certain constant relations between the spinal condition of hematomyelia or myelitis on the one hand, and functional or structural changes in kidney function, and in the motor phase of the bladder on the other hand.

Since then there are 15 more cases added, six in civilian life, the others at the hospital.

The results show that the curves showing reciprocity between nitrogen retention and phthalein output have maintained the same relation. There has been no evidence of return of integrity of the reflex arc necessary for the act of normal bladder control. There has been decided improvement in the motor phases, with no appreciable advance in sensory regeneration. In several cases partial sex function return is recorded, but in all cases there is a persistence of lack of sensation in the external genitalia and perineum.

There is every indication to believe that in all cases the bladder has retained the changes developing subsequent to the injury, and that each case constantly carries a small amount of residual urine. In spite of the residual, there have been no cases of stone formation from retention.

Bladder and bowel functions have shown a parallel curve as we should expect from their developmental analogy.

All the cases that died succumbed to infection. Three autopsies on characteristic types failed to show any dilatation of ureter or kidney pelvis, and it is not believed that back pressure in these traumatic types is confined to the bladder and does not pass beyond the ureteral orifices.

Catheterization is to be avoided, for it means sure infection, and it is to infection that these cases succumb. [B. D. W.]

SPINAL CORD BLADDERS OCCURRING IN PERNICIOUS ANEMIA.

KRETSCHMER, HERMAN L. (*Journal of Urology*, Sept., 1921). This paper concerns four cases of pernicious anemia which presented various urinary symptoms of sufficient gravity to justify careful and complete urological study.

Equally distributed as regards sex, all in the fifth decade of life.

The nervous symptoms—numbness in both hands and legs; numbness of toes; tingling sensation on bottom of feet; hands and feet usually cold; difficulty in handling small objects; unsteady gait, especially in dark.

Urinary symptoms—difficult urination, usually associated with obstructive lesions at neck of bladder; as progression takes place, bladder weakness and then incontinence with complete bladder paralysis in the terminal stages.

No case had incontinence of feces.

By cystoscopy the bladder is finely trabeculated. There is usually a superimposed infection, cystitis, later pyelitis.

Three of the four cases have died. [B. D. W.]

THE SAGGING KIDNEY AS A FACTOR IN THE PERSISTENCE OF COLON BACILLUS PYELITIS.

CRABTREE, E. GRANVILLE, AND SHEDDEN, WILLIAM M. (*Journal of Urology*, Sept., 1921). say: This type of kidney infection is believed to be a medical condition requiring urinary antiseptics and symptomatic treatment, by a great many medical practitioners,

such as would be given any acute infection. The patient should be warned that it may develop into a chronic pyelitis, and may persist as a permanent disability.

Usually this condition is accompanied by sagging of the organ and thus a kink is in the ureter. Frequently the infection is unilateral; more often on the right and more often in ptotic individuals.

Many instances are bilateral.

Other causes of stasis, other than sagging, are stone, hydronephrosis, abnormal renal development, and strictured ureters. With these possibilities in view, it is necessary that careful study be done so that cause may be remedied at its inception, to prevent the progressing of these cases to the stage where we have a destroyed kidney.

It is believed that infections all along the urinary tract, with the exception of tuberculous infections, get well, unless there is something that prevents drainage and causes the urine to puddle.

Pelvic lavage in these sagging cases diminishes the acute infection and the process then quiets down to a great extent, when it has been established that the kidney has normal drainage.

By such study of cases of pyelitis the definite types of treatment will be established. [B. D. W.]

THE REMOVAL OF URETERAL STONE BY CYSTOSCOPIC MANIPULATION.

CROWELL, A. J. (*Journal of Urology*, Sept., 1921), says: In the past six years ninety-five cases of ureteral stone have been subjected to cystoscopic manipulation, and the stone was removed in 88 cases. In four the stone was pushed back into the kidney pelvis; one obtained relief from dilatation and failed to return for further treatments; and two ureterolithotomies were performed.

The method consists in ureteral anaesthesia and ureteral dilatation. Two and three No. 11 urethral catheters may be coaxed up a ureter; with such dilatation the stone is usually dislodged and comes down. Mortality is much lessened.

The method is not practical in children where the urethra is too small to admit a catheterizing cystoscope, or in men with enlarged prostates, or bladder tumors, or stones making ureteral catheterization impractical. [B. D. W.]

RELATION OF UROLOGY TO GROUP MEDICINE.

BRAASCH, WM. F. (*Journal of Urology*, October, 1921), says: Clinical data, other than those frankly suggestive of involvement of the urinary tract which indicate consultation by urologists, are: 1. History of previous haematuria or pyuria, even though urine analysis is negative for the time being. 2. Pus or blood cells in the urine, even though no other symptoms or physical data are suggestive of involvement of the urinary tract. 3. Any tumor in the upper lateral abdomen or suprapubic area. 4. A roentgenographic shadow suggestive of location in the urinary tract. 5. A history of abdominal pain without definite evidence of disease in the intra-abdominal organs.

Urologists usually have patients referred to them for examination because of pronounced urinary symptoms, such as frequency, difficulty, or haematuria. As a result, many patients with lesion in the urinary tract without such symptoms do not have the benefit of skilled urological investigation, and the condition is either first recognized in the advanced stages, or on surgical exploration, or it is not recognized at all.

The most closely related of the specialties to urology is roentgenology, and it is difficult to imagine how either specialty could attain any degree of accuracy without mutual cooperation. The data offered the internist and the surgeon by the urologist in the

differential diagnosis of abdominal lesions are often of the greatest value; as radiation of pain to the renal or suprapubic area, abdominal tumors, particularly in the upper lateral quadrant.

In cases of persistent fever, the possibility of an occluded renal lesion, a dormant pyelonephritis, a concealed infection of the seminal vesicles, a cicatricial renal tuberculosis, must all be considered as possible sources. Occasionally early lesion of the central nervous system can be recognized through cystoscopic data. On the other hand, patients with urinary difficulty or residual urine, who have no clinical evidence of urinary obstruction on physical or cystoscopic examination, should be referred to the neurologist for the exclusion of lesions of the central nervous system. This cooperation of neurology and urology must be emphasized.

The orthopedist many times wishes renal tuberculosis ruled out or the differentiation of a psoas abscess and a sinus leading from a pyonephrosis. The pediatricist realized the importance of even a few pus cells in the urine of children with obscure symptoms or fever. The importance of foci of infection in the mouth, nose, and throat, and their bearing on infection of the urinary tract, has been emphasized. There is close relationship of diseases of the pelvic organs in the female to the urinary tract.

Dr. Braasch feels that the most important advantage offered by group medicine is in the increased facilities for graduate instruction in the various specialties. The patient also can expect (1) a more complete diagnosis, (2) economy in time and expense, and (3) better results. Also he feels that there are many reasons in favor of the urologist taking care of his own surgery. [B. D. W.]

PAPILLOMA OF THE URETER.

CULVER, HARRY (*Journal of Urology*, October, 1921), says: Ureteral papilloma have a tendency to be located in one of three manners: the entire ureter involved with the pelvis and bladder, also pelvis and first few centimeters of the ureter involved, or lower part of pelvis and upper part of ureter and lower centimeters of ureter with intervening parts being normal. The case presented in detail with illustrations belongs in the second mentioned group, but has no renal pelvic involvement.

The author collected from the literature 16 cases besides his own. Fourteen were reported clinically, and three were discovered at autopsy. The clinical cases presented essentially three symptoms: tumor, haematuria and pain. Nine cases showed definite tumor mass, and in two this was first sign and only complaint. This tumor in all incidents is that produced by hydronephrosis or hematonephrosis, and not due to neoplasm itself. Seven had haematuria, and in two this was the only complaint. This may or may not be accompanied by ureteral colic. Six cases had pain and in one was the only complaint. All these tumors are benign, but potentially malignant, so it is obviously indicated to do as complete a removal as possible. If location is near bladder, ureteral resection and transplantation can be done. For all tumors further removed from the bladder complete nephrectomy or ureterectomy is indicated, unless there are serious complications. [B. D. W.]

THE USE OF THE D'ARSONVAL METHOD OF COAGULATION NECROSIS FOR THE REMOVAL OF IMMENSE INTRA-VEESICAL OUTGROWTHS OF THE PROSTATE, SIMPLE OR MALIGNANT.

MACGOWAN, GRANVILLE (*Journal of Urology*, Oct., 1921), says: During the past ten years much has been accomplished, in curative effect, by the high frequency current in the treatment of tumors of the

bladder. The writer and others then made use of both the Oudin and the D'Arsonval currents in the treatment of large papilloma and cancerous growths of the bladder, with such success, that they felt it desirable, as a method of removal of giant tumors, which spring from the bladder wall or directly at the prostate; whether cancerous growths distinctly pediculated, but filling up large portions of the bladder; or tumors, simple adenoma, springing from either or both sides of the prostate; supplied with blood-vessels of large size, promising enormous loss of blood in any attempt to enucleate, so that the stanching of the hemorrhage and its control under any kind of tamponage would be problematic.

The Oudin current is monopolar, and is not available for this purpose because it is not hemostatic, excepting when the heat of the current becomes sufficient to char the tissues; whereas the bipolar, or D'Arsonval current, is distinctively disorganizing, causing coagulation necrosis and desiccation of the tissue. In this process, the fluids of the tissue are cooked, the endothelium of the blood-vessel destroyed by the heat of the process of boiling and subsequently dried up. This destruction does not extend very far from the end of the metallic electrode; its action is not rapid.

The author then reports five cases in detail with illustrations. He feels that a successful treatment of only one of these cases could, in all probability, have been accomplished in any other manner.

[B. D. W.]

FOCAL INFECTIONS IN RELATION TO SUBMUCOUS ULCER OF THE BLADDER AND TO CYSTITIS.

MEISSER, JOHN G., AND BUMPUS, HERMON C., JR. (*Journal of Urology*, Oct., 1921). say: The changes in the tissue in submucous ulcers indicate a blood-borne infection. The urine is usually sterile, which is a further indication that the etiology of the condition must be sought outside the urinary tract.

Hunner has suggested the source of such infection is oral sepsis, which often is the cause of other diseases. At the Mayo clinic 15 patients with submucous ulcers have been operated upon. Seven of these had had tonsillitis, three had had tonsillectomies, five had had grip, three had had scarlet fever, and one had had rheumatism. On careful dental examination 11 cases showed evidence of periapical infection.

In the series of the six patients whose cases are herein reported five gave histories of previous tonsillitis; in three it had been sufficiently severe to require tonsillectomy; in one case an infected tonsillar remnant furnished the culture for our experimental work. Five of the six patients had dental sepsis. Four patients had had symptoms pathognomonic of submucous ulcer of the bladder; the presence of the ulcer was confirmed by cystoscopic examination. The urine analysis in each case was negative, except for a few erythrocytes and an occasional leucocyte. One of the remaining two patients had diffuse cystitis of unknown origin, the other a simple ulcer of the bladder. In both the urines from the bladder were highly infected.

The authors conclude that finding these streptococci in the excised ulcer and their experimental work demonstrate that submucous ulcers of the bladder and other infections of the urinary bladder may be due to focal infections harboring streptococci which have a selective affinity for the urinary tract.

[B. D. W.]

THE USE OF GUM-GLUCOSE SOLUTION IN MAJOR UROLOGICAL SURGERY.

LOWSLEY, O. S., MORRISSEY, J. H., and RICCI, J. V. (*Journal of Urology*, Nov., 1921). say: The most

important and dangerous signs of shock or a shock-like condition are the profound fall in blood pressure, the concomitant weak and thready pulse, the rapid, shallow respiration, the subnormal temperature.

Physiologists have demonstrated that trauma, continued trauma, is the essential and direct cause of shock; particularly in the presence of prolonged anaesthetics, prolonged surgical procedures, and excessive loss of blood. It is believed that at the site of injury some chemical substance is formed, subsequent to a derangement in the metabolism, which acts locally on the peripheral capillaries, increasing their lumen by dilatation of the walls, and adding to their permeability.

A falling blood pressure signified a failing circulation, and this in turn precludes an anemia of the bulbar centers, the respiration, the vaso-constrictors, and the vaso-dilators. So if a substance can be used in transfusion and maintain the blood pressure, there will be no anemia of blood centers. Also acidosis, which may be brought about by muscular metabolism, or crushing of tissues, is roughly an increased carbon dioxide volume and a diminished bicarbonate content of plasma. Thus with a better maintained circulation renal and pulmonary vascularity is at its best level, thereby favoring the elimination of acids and gases.

Gum-glucose solution increases the volume of the circulating blood, and maintains it at this higher level, and thus raises the blood pressure, combats a tendency to acidosis, furnishes a certain amount of stimulation, and furnishes a certain amount of food.

The injection of the fluid tends to increase the blood volume and to raise the blood pressure. The presence of the gum tends to prevent the loss of this fluid from the vessel, and thus acts to maintain the advantage gained by infusion. The glucose acts both to prevent or to combat the acidosis that may be present, and is a stimulant.

[B. D. W.]

A CASE OF UNUSUAL SOLITARY TUBERCULOSIS OF THE KIDNEY.

SMITH (*Journal of Urology*, Nov., 1921) says that tuberculosis of the kidney presents itself in two common forms. One is miliary tuberculosis of a general hematogenous infection; the second and common type is that of tuberculous pyonephrosis. The third and uncommon type is that of the isolated, solitary, tuberculous granuloma.

The author cites a case in detail of a young adult with a clear-cut clinical case of unilateral renal tuberculosis. There was for one week, preoperative, a persistent elevation of temperature which was not explainable by pulmonary tuberculosis or by any of the common causative agents. Following an extremely easy removal of a diseased kidney the patient developed an intense streptococcus septicaemia with later peritonitis which resulted in death. Pathological examination of the kidney and post-mortem showed, first, a rare condition of a large, solitary tuberculoma of the kidney, from which repeated sections were necessary to establish its specificity; second, the absolute non-existence of any other focus of tuberculosis.

[B. D. W.]

DUODENECTOMY.

MANX, F. C., AND KAWAMURA, K. (*Annals of Surgery*, Feb., 1922).—These authors write as follows:

This brief review of our experiments readily shows that the duodenum is not necessary for life, and the fact that noteworthy changes were not observed makes it appear that its function does not differ greatly from that of the rest of the intestinal tract.

Only one positive finding was obtained in the entire series of experiments. In two of the dogs a large ulcer was found on the jejunal side of the suture line of the gastrojejunal anastomosis. In one of the animals the ulcer perforated, causing peritonitis and death 515 days after duodenectomy. The other animal came to necropsy 383 days after duodenectomy and a large ulcer with a hard base was found.

Eleven duodenectomized dogs were kept under observation for from ten to thirty months. One of these is still alive. Of the ten coming to necropsy, two had ulcers. Since peptic ulcer of the subacute or chronic type is very rare in the dog, this seems significant.

At the suggestion of Dr. C. H. Mayo we are making a more comprehensive study of the effect of duodenectomy in relation to gastric secretion, and are also studying the possible function of Brunner's glands. From these studies we hope to determine the reason for the presence of these ulcers.

The investigation was undertaken for the purpose of determining the effect of removing the duodenum. A one-stage operation for removal of the duodenum was developed. The duodenum was removed from the dog, cat, hog, goat and monkey, although long-continued observations were made only on the dog, cat and hog. Careful studies on these three species did not reveal any noticeable changes following the duodenectomy. In the dog observations were carried on more than two and one-half years after operation. The animals remained in good condition. No data have been secured to show that the duodenum is of great importance in any of the species studied. However, in two of the ten dogs studied a typical peptic ulcer occurred on the jejunal side of the gastrojejunal anastomosis. Whether this bears any relation to the loss of the duodenum or any specific part of it, as Brunner's glands, is to be determined. [E. H. R.]

FISTULAE JEJUNO-COLICAE PEPTICAE.

HELLSTRÖM, N. (*Acta Chirurgica Scandinavica*, vol. LIV, fasc. iii, p. 282) summarizes the literature of this condition, and reports a case of his own. Forty-two cases in all have been described. The symptoms of perforation between jejunum and colon have appeared as early as four months and as late as twelve years after gastroenterostomy. No case has been reported following a gastroenterostomy with the loop in front of the colon. The symptoms are diarrhoea, fecal vomiting and eructations, emaciation and general debility, and pain. Diarrhoea is the earliest symptom and one which was present in every case except one.

The operative treatment of this condition depends upon the condition of the patient and the findings at the time of laparotomy. If possible, simple separation of the adherent intestines, with closure of the fistulae, should be done. It may be necessary to short-circuit the colon, or to resect the jejunum. Hellström advises against resection of the colon. In some cases, as in his own, it may be necessary to resect both colon and jejunum, owing to the infiltration of their walls and the extensive adhesions about them. [G. G. S.]

WHAT CAN MORE THAN 6000 POST-MORTEM EXAMINATIONS TEACH US ABOUT EMBOLI AND EMBOLIC GANGRENE OF THE EXTREMITIES?

BULL, P. (*Acta Chirurgica Scandinavica*, vol. LIV, fasc. iv, p. 315) in 6140 autopsies found emboli in the extremities 15 times. In 13 of these cases, thrombi were found in one or more of the cardiac

cavities; in the remaining two cases the primary thrombus was presumably in the aorta. Thrombi were found in the cardiac cavities in 181 cases; they occurred in the right side in 67 cases, in the left side in 63 cases, in both sides in 51 cases. In the 15 cases of embolism of the extremities, emboli occurred in one or more organs in 14 cases. It is important to remember that embolus of an extremity is most often nothing less than a link in a chain of emboli in other arteries.

[G. G. S.]

EMBOLECTOMY AS A METHOD OF TREATING EMBOLIC DISTURBANCES OF THE CIRCULATION IN THE EXTREMITIES.

KEY, EINAR (*Acta Chirurgica Scandinavica*, vol. liv, fasc. iv, p. 339) publishes a lengthy article upon this subject. He embodies his views in his conclusions, from which the following points may be abstracted:

An embolus lodged in a peripheral artery will rapidly cause changes in the intima and a thrombus formation further along the vessel. Therefore, within an hour after the embolus has lodged an attempt should be made to remove it by arteriotomy. Local anesthesia should be employed. There are a number of points in the technic which should be observed, such as keeping hands and instruments wet with sodium citrate solution. After removal of the embolus the proximal compression should be released in order to wash out any particles of clot. If contraindications to operation exist, such as poor general condition of the patient, bad heart action or advanced arteriosclerosis, one should try as soon as possible to dislodge the embolus by massage.

[G. G. S.]

TREATMENT OF SNAKE-BITE.

HAGRA (*Ind. Med. Gazette*, Nov., 1921) reports 35 cases of snake-bite treated with various drugs. He finds that antivenene is the specific remedy against the venoms of the cobra, krait and some of the viperines. It is capable of neutralizing venoms when present in the blood stream. Its efficacy depends on the freshness of its preparation and the shortness of the interval between the bite and the administration of the drug. Intravenous administration is best and can save life even when toxic symptoms have developed.

Potassium permanganate can neutralize the venom locally. Given subcutaneously, it causes pain and swelling, but is effective.

Iodine given intravenously is effective against viperine toxæmia when thrombosis is developing. Injection relieves pain and localized swelling, and brings about speedy recovery.

All remedies are useless after complete fixation of the venom in the brain and nerve cells.

[L. D. C.]

HEALTH EXAMINATION OF WORKING CHILDREN.

The Department of Labor and Industries is publishing a form for use in the examination of children applying for employment certificates. This form covers the main points given in the one recommended by the Children's Bureau, but is much less detailed. The Department recommends that school physicians

assigned to examining children for health certificates use this schedule. Copies will be furnished on application.

At the present time there is no standard form for this purpose in use in the state. A few physicians have their own records; but in the majority of instances no form is used, so no permanent record is kept. It is important that the results of the examination should be recorded and kept on file in the office from which the employment certificate is issued. By this means it is possible, when the child returns for another certificate, to check the examination with the result of the previous one, to ascertain whether defects noted at the former time have been corrected, and to secure some information as to the effect of the work on the child's health.

A standard form for all issuing offices is desirable, in order that there may be greater uniformity in practice throughout the state and in order to insure that the examination made covers all the essential requirements. It is hoped that the use of the proposed schedule will assist in bringing about these results and will secure a more thorough and careful examination of children applying for employment certificates than is the case at the present time.

The Department is also preparing a handbook explaining the procedure in issuing employment and health certificates and badges for street trades. This will contain a section on the health certification of working children, with reproduction of the new forms.

A copy of the blank is herewith submitted:

MASSACHUSETTS DEPARTMENT OF
LABOR AND INDUSTRIES.

Record of Physical Examination of Child
Applying for Employment Certificate

Name		Address		School	Grade
Intended Employer		Address		Industry	Occupation
1. Sex, M. F.	2. Color, W. C. O.	3. Birthplace of Child			
4. Of Mother		5. Of Father		6. Date of Birth	
7. Age Yrs.	Mos.	8. Height	Ft. In.	9. Weight	Lbs.
Significant Medical History: Physical Examination:					
10. General Physical Condition					
A. Excellent		B. Good		C. Fair	D. Poor
11. Maturity Apparently Attained Yes No					
Skin and Mucous Membranes					
12. Color		13. Parasitic Dis.		14. Other Dis.	
Eyes					
15. Vision		R. L.	30. (SP)		
16. Disease		R. L.	Summary of Defects		
Ears					
17. Hearing		R. L.	30. A. Correctable		
18. Disease		R. L.	32. B. Non-Correctable		
Mouth					
19. Dental Defects		33. Treatment recommended:			
A. Caries		Certificate			
20. Other Defects		Recommended			
Nasopharynx					
21. Nasal Obstruction		34. A. Unconditional			
Tonsils					
22. Normal		35. B. Provisional (SP)			
23. Abnormal (SP)		Refused			
		36. A. Permanent (SP)			
		37. B. Temporary (SP)			

Chest	Remarks:
24. Heart	
Normal	
Abnormal (SP)	I am—am not—acquainted
25. Lungs	with the process on which
Normal	this child is to be engaged.
Abnormal (SP)	(Cross out statement
Abdomen	which does not apply)
26. Hernia	
Nervous System	
27. A. Chorea	
28. B. Tic	
29. C. Speech Defect	
I certify that I have examined this child and that	
the findings are as above stated.	
Signed by Examining Physician.	

Instructions to physicians for filling in records of Physical Examination of Children Applying for Employment Certificates.

In filling out record blank, use check (x) where defect or abnormality is found, and dash (—) where condition is normal. Where item is marked (SP) specify defect or condition indicated.

Grade—Enter grade completed.
Industry—Specify, as "cotton mill," not "textile."
Occupation—Specify, as "doffer," not "mill hand."
Color—White, colored, other.
Birthplace of Child—Country of Birth.
Birthplace of Mother and Father—Country of birth.

Height—To be entered to nearest quarter inch. The child should be measured without shoes.

Weight—To be entered to nearest quarter pound. The child should be weighed without shoes and outer clothing.

Significant Medical History—Brief notation of previous illnesses.

General Physical Condition—To be determined by such factors as muscle tone, the color of the skin and mucous membranes, and the relation to each other of height, weight and age. Check on record card condition indicated as follows: Excellent—Good—Fair (Requiring supervision)—Poor (Requiring medical attention).

Maturity Apparently Attained—Examiner's impression.

Skin—Parasitic diseases. Here note pediculosis, scabies, etc.

Eyes—A separate examination and record of the visual acuity of each eye should be made, the Snellen or similar test card* being used. Ability to read the twenty-foot line at a distance of twenty feet to be considered perfect and recorded as 20/20. Record in fractions, the numerator indicating the distance between chart and child, denominator indicating line read by the child. (Figure shown at side of chart.) If child is unable to read any of the letters correctly at twenty feet, move him toward the chart until he can see the top letters, and measure distance between him and the chart and record as test. If child is wearing glasses, the test to be made both with glasses on and with glasses off. A child with vision of 20/30 or less in either eye should be referred to an oculist.

Ears—Each ear to be tested separately, using the whispered voice at a distance of twenty feet. Child should stand with ear being tested toward examiner, and other ear covered or external canal occluded. If hearing is defective, the examiner should advance slowly toward the child until he can hear the whispered voice—Measure distance between examiner and child, and record in fractions, 20/20 being normal. Inability to hear the whispered voice at ten feet or less should be considered defective hearing and should be referred to a specialist.

Tonsils—Enlarged—diseased. Visual examination

*The Department of Education will furnish a new visual test card for use in the public schools in this State.

of the throat to be made with the use of tongue depressor.

Chest—Examination of the chest should always be made on the bare skin.

Lungs—To be examined by percussion and auscultation, using the stethoscope. Any abnormal condition to be specified.

Heart—To be examined with stethoscope. Heart disease—specify variety of organic disease and compensation.

Abdomen—Presence or absence of hernia to be determined by questioning and physical examination where suspected. State whether found or not, whether truss worn, and whether or not child needs operation.

Orthopedic Defects—General inspection of the body to be made. All defects, including impaired mobility or defects of posture must be specified. Necessary measurements to be made when indicated by abnormal findings.

Treatment Recommended—Note treatment recommended for correction of defects, and to what agency, if any, child is referred for treatment. For example, reference to dentist in case of defective teeth.

Certificate—Check as indicated and specify physical defect causing recommendation of refusal or of provisional certificate issue.

Remarks—Examiner to cross out "am" or "am not," indicating ignorance or knowledge of the precise nature of the work for which the applicant is to be employed.

BOSTON MEDICAL HISTORY CLUB. MAY 12, 1922.

At the last meeting of the Boston Medical History Club, Dr. Walter R. Steiner of Hartford, Conn., read a paper on "Dr. Elisha Perkins and His Metallic Tractors."

Dr. Elisha Perkins was born in Norwich, Conn., on January 16, 1741. His medical education came largely from his father, Dr. Joseph Perkins, a well-known and respected physician of that vicinity. He settled in Plainfield for the practice of his profession and became prominent and popular, giving largely to the support of the academy and taking many of the students into his own house to live. It is said that his family at times numbered 50. During the Revolution he was surgeon to the Eighth Infantry. In his practice he had noted the influence of metallic substances on nerves and muscles, and had observed the contraction of muscles under the knife. This led to his discovery, in 1796, of his famous metallic tractors. These consisted of two rods of metal, about three inches long, shaped like horseshoe nails, with the legend "Perkins Patent Tractors" stamped on them. One of these was made of copper, zinc and a little gold; the other consisted of iron, silver and supposedly platinum. The pair cost about a shilling to manufacture and sold for two guineas. "To Perkinize" was to draw the instruments alternately across the

painful part, or from the painful part to the extremity. It was, however, stated that this "does not always relieve headache due to the excessive use of strong drink."

The discovery was reported at a meeting of the Connecticut Medical Society, but was apparently received with some doubt. However, Dr. Perkins went with his tractors to Philadelphia and took that city by storm. Congress was sitting at the time and prominent legislators became his patients. Washington was reported to have purchased a set, and so popular did they become that people sold horses and carriages to buy them. One speculative individual sold his plantation and took the pay in tractors. In February, 1796, a patent was taken out. The Connecticut Medical Society, refusing to honor its own prophet, condemned the practice at this time, and the following year expelled the discoverer from the body. In 1799 he died in New York of typhoid, a disease he had gone there to cure with his tractors.

Benjamin, a son of the inventor, and a graduate of Yale, went to London in 1795 and opened an office to introduce the tractors. In applying for a patent in England he explained that it was "generally believed that they act on the galvanic principle." This, however, was but one of several explanations of their action. Among many cited in his book as users of the tractors were nine members of the clerical profession, six of them doctors of divinity. One person, less favorably impressed, wrote: "If they have ever relieved pain I have found them useful also in picking walnuts." Several books appeared extolling the virtues of the tractors; one was published in Copenhagen (Denmark had fallen before the tractors) and translated into German and English. Fifty cases formed the basis of this Danish report.

The tractors, it was stated, must be applied three times daily for one-half an hour. They were not effective in venereal or scrofulous diseases. As proof that imagination had no part in the cures attributed to the tractors it was pointed out that they were equally effective on infants, in epileptic fits, and on dumb animals, where no imagination could exist. Mr. John Grant of Leighton Buzzard, Bedfordshire, found the metallic tractors "equally useful on the brute animal as on the human subject, and I think they are more active on the horse than on those which chew the cud, as sheep, cows, etc."

The first Perkinian Institution was opened in 1804 in Frith Street, Soho Square, London. Many others followed. One poem of lasting fame resulted from the tractors. Supposed to be a satire on Perkinism, it was probably written at the instigation of Benjamin Perkins by a Vermont inventor in London and is in reality a bitter satire against the Royal College of Physicians.

"The Modern Philosopher, or Terrible Tractorations! A Poetical Petition Against Galvanising Trumpery and the Perkinistic Institution in Four Cantos. Most Respectfully Addressed to The Royal College of Physicians by Christopher Caustic, M.D., LL.D., A.S.S., Fellow of the Royal College of Physicians, Aberdeen, and Honorary Member of no less than nineteen very learned Societies."

Benjamin Perkins left England in 1803 with ten thousand pounds derived from the sale of tractors, and established in New York in the bookselling business. He died soon after at the age of 37. By 1811 the tractors were almost forgotten.

At the conclusion of Dr. Steiner's paper Dr. Streeter spoke informally on the plan to install an ancient apothecary shop in the Boston Museum of Fine Arts, the trustees having voted last month to give space for this purpose. Reconstruction in museums of ancient crafts and shops is quite common in Europe, but so far has not been done in this country. Thus in the Germanic Museum in Nuremburg are three rooms, one representing a 17th century German and one a 17th century Italian apothecary shop. These are also found in Zurich, Munich and other cities. Dr. Streeter showed photographs of the shops in the Nuremburg Museum, and also exhibited an ancient jar and a bronze mortar and pestle. A possibility for furnishing this space is to buy complete a shop of the 16th or 17th century with the original fittings and shelves, such as still exist in the villages of the Appenines. Dr. Streeter now has enough mortars, some bottles, and about 25 jars, but two or three hundred are needed; these need not all be of the same period.

STAFF CLINICAL MEETING, BOSTON CITY HOSPITAL, MAY 11, 1922.

THE first paper was by Dr. Oscar M. Schloss, professor of pediatrics at the Harvard Medical School, on "The Causes and Treatment of Vomiting in Infants." Dr. Schloss outlined the causes as follows:

- I. Direct gastric irritation.
 - (a) Excessive fat or sugar.
 - (b) Excessive quantity of food.
- II. Delayed gastric emptying.
 - (a) Obstruction.
 - Pyloric stenosis.
 - spasm.
 - Duodenal.
 - (b) Atony of stomach.
 1. Due to excessive feedings.
 2. Toxic.
 - Acute nutritional disturbances.
 - Acute infections.

Vomiting is one of the most common symptoms of infancy, due to many causes and accompanying many conditions. The cause is probably always central, being reflex from the stomach, heart, etc.

Vomiting due to direct gastric irritation is a common type, although not as common as formerly, before the feeding of infants became an exact science. This type is generally due to excessive fat or sugar in the formula, and is controlled by reducing the offending principle, or the total quantity of food if the fault lies with an excessive amount.

Delayed gastric emptying is a cause of vomiting, primarily through obstruction. The chief factor in this condition is pyloric stenosis, and a discussion of this always involves pyloric spasm; the two must be considered together. The cause is unknown, although it is known that it consists in hypertrophy and contraction of the circular muscle of the pylorus. This is commonly considered to be congenital, although the cases that have actually been proven so are rare. Vomiting generally begins two to three weeks after birth, so if congenital a secondary element must come into play. This is usually spasm. Two cases on record with a typical history of pyloric stenosis showed, on operation, normal pyloruses which contracted on manipulation, with production of a tumor. Some believe the tumor is a gradual development due to the spasm. Many cases with symptoms of obstruction without tumor clear up on medical treatment.

The treatment of both conditions depends on the diagnosis. If it is certain that there is a definite tumor with hypertrophic stenosis, operation is indicated. If there is doubt whether spasm or tumor is causing the obstruction, medical treatment should be instituted until the diagnosis is certain or the condition is relieved. Opinions on treatment are divided into three groups:

1. Operate as soon as the diagnosis of stenosis is made.
2. Cases should be considered as primarily medical, and surgery resorted to only after a thorough trial of medical treatment over a considerable period of time.
3. All cases should be treated medically at first, but operated upon if improvement does not come quickly—within ten days or two weeks.

Dr. Schloss believes that many cases of hypertrophic stenosis can be cured medically, but only with long hospital treatment. Generally the safest and most economical method of treatment is to operate after a week or ten days of unsuccessful medical treatment.

Medical treatment for both stenosis and spasm is very variable. This may consist of small, frequent feedings of breast milk, starting with one gram at three-hour intervals, and

increasing daily. Stomach washes two or three times daily and atropine in sufficient doses—1/1000 of a grain in each feeding, increasing 1/1000 at a time until 5-6/1000 is reached—are other methods employed. A fourth method consists of thick cereal feedings, either rolled into a ball and placed on the back of the tongue or forced through a Hygeia nipple. Sometimes transfusion must be resorted to early in the treatment to tide over a patient in bad condition. With such a regime of starvation dehydration must be anticipated and rectal fluid given if necessary.

Atony of the stomach entails delayed gastric emptying with a greatly dilated, thin-walled stomach. A common cause is the feeding of large amounts through fear of irritation from too concentrated feedings. Thirty-two ounces of fluid a day is sufficient for most infants until they get whole milk. In treating this condition the feedings are thickened with starch until they will just go through the ordinary nipple.

Acute nutritional disturbances with diarrhoea are the result of too much feeding. The infant at first refuses food and then starts vomiting. Retention is found with the stomach tube. For treatment reduce the total amount of food to the minimum. This also obtains for types due to acute infections where retention results from decreased motility of the stomach.

In cyclic vomiting the acetone bodies are increased, but this is an effect, not a cause, of vomiting. This must be treated with large amounts of carbohydrate, orally, rectally, or intravenously.

The second paper of the evening was given by Dr. Edwin H. Place, on "Rashes: Their Significance. Differential Diagnosis, Treatment."

Toxic eruptions are of many types. They may be due to vasomotor disturbances or to systemic disturbances resulting from disease, drugs, foreign proteins, or local applications or conditions.

In diagnosis we must think of the eruption as part of the disease, often essential for diagnosis, but the diagnosis is rarely made on the eruption alone.

In scarlet fever we encounter a fine, punctiform rash, with papules rarely more than two mm. in diameter, symmetrical in its distribution, electing first the flexor surfaces of the body where the skin is thinner. The rash may be distributed all over the body except the face, or limited to the axillae and groins. Next in order of frequency come the sides of the thorax, then the flexor surfaces, then the general distribution. The eruption may be coarse on the extremities, but is never coarse and blotchy on the trunk. In its course it progresses from the upper trunk downwards, subject to considerable variation.

Measles presents a generalized eruption starting on the face and progressing downwards. The coarse, blotchy eruption of measles is never like the fine, scarlatiniform rash. The macules of a measles rash are irregular, taking all sorts of forms, of which none are typical.

Rubella runs the same course as measles but much more rapidly. Where a measles rash is three or four days in its progression, rubella completes its course on the third day and is generally entirely gone on the fourth. The macules are 3-4 mm. in diameter, intermediate in size and type between scarlet fever and measles.

The eruption of chicken-pox is more distinct and goes through more changes in the skin. It is never grouped or limited but peppers the entire body irregularly. The evolution is rapid, with the production of vesicles in 24 hours and pustules in three days. The lesions occur in crops, unlike smallpox, where they come at the same time and go through the stages of evolution together. The lesions of smallpox occur characteristically on the face and select the extremities rather than the trunk. They may come out in enormous numbers on a congested part of the body.

The type of lesion is of little value in diagnosis. The multi and unilocular variations and umbilication are not clinically valuable. The palmar, plantar, and oral distribution, considered characteristic of smallpox, may also apply to chicken-pox.

Diagnosis of exanthemata is made not so much from the eruption as from the other manifestations of the disease. Drugs must not be considered as the cause of an eruption until all other causes have been eliminated. Salicylates are not followed by a scarlatiniform rash nearly so often as scarlet fever is. Toxic eruptions in the exanthemata may cause confusion in differential diagnosis; septic rashes may occur in septicemia, but other causes for the eruption must first be excluded.

The mucous membrane lesions of rubella are often mistaken for Koplik's spots, but are smooth and shiny, not horny or ulcerative as are true Koplik's spots. Enlargement of the post-auricular lymph nodes is common in rubella, but far from specific for this disease.

Eruptions as such require no treatment except symptomatically, as for itching. Chicken and small pox require skin asepsis to prevent secondary infection. Tub, spray, soap, and rinse are important, even from the onset. Then dry and apply an antiseptic wash or lotion. Fifteen or twenty per cent. chlorinated soda is excellent for this. Iodine may be used locally. The formation of crusts means that asepsis has not been carried out. Scarring cannot be prevented, although it may be accentuated by scratching or by secondary infection.

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THE IMPORTANCE OF BLOOD CHEMISTRY TO THE CLINICIAN.

THERE can be no doubt that one of the outstanding features of medical progress during the past decade has been the tremendous interest taken in the chemical and physico-chemical study of the blood. The really phenomenal activity in this field of investigation has followed the introduction of accurate and relatively simple methods of study, largely through the work of Folin, S. R. Benedict, Bloor, Van Slyke and their associates. Perhaps the most important result of the development of their methods has been the stimulation of the investigation of disease in the living individual throughout the world.

If one takes a narrow view of the situation and asks what new tests are available to the physician for practical daily use as a result of all of the extensive studies of blood chemistry the answer may seem disappointing. But the same question may be asked of the pathologist, the immunologist, the pharmacologist or the physiologist and an equally disappointing answer returned. To take such a view is to miss the point of the entire purpose of medical investigation. To ask always for discoveries that are immediately useful in clinical diagnosis, prognosis and treatment is to betray a misunderstanding of the problem.

The situation with respect to blood chemistry is not unlike the situation with respect to electrocardiography or the study of basal metabolism. The occasion may not be frequent when a knowledge of the electrocardiogram or the basal metabolism of a patient is indispensable to his welfare, but no one can doubt the value of investigations in these fields in the explanation of signs and symptoms whose significance had previously been determined only empirically, if at all.

Thus the study of blood chemistry has confirmed and elaborated the modern theory of protein metabolism first formulated by Folin. It has given us a conception of the rate of utilization of sugar by the body and a conception of the intermediary metabolism of fat. We owe to L. J. Henderson our theory of the neutrality-regulating mechanism. The investigations of Bohr, Hasselbalch, Sørensen, Barcroft, Haldane and others in Europe, and in our own country those of Van Slyke, Y. Henderson and L. J. Henderson, have made possible the means of expressing in the form of a monogram the physico-chemical system representing the respiratory physiology of the blood.

If one doubts the value to the clinician of well-founded theories regarding the physiological chemistry of the blood, one should consider the enormous difficulties in the way of the purely clinical evaluation of empirical data. Thus, for example, the use of the carbon dioxide content of the venous blood as a measure of blood alkali was known nearly fifty years ago, and the failure of the method to be more generally used has been attributed to the difficulty of the technique. Following the perfection of a simple and accurate method by Van Slyke, extensive studies of the carbon dioxide content of the blood and of the carbon dioxide combining power of the plasma were made. Yet, nevertheless, it was the failure to comprehend the mechanism of acid-base equilibrium that led to the belief by many that a lowered carbon dioxide combining power always signified a condition of acidosis, a belief that gained foothold especially because of the low values found in outspoken diabetic acidosis. Yet quite aside from the clinical significance in diabetes of the lowered carbon dioxide combining power of the plasma, the further work of Y. Henderson, Van Slyke and L. J. Henderson makes it clear that the level of the carbon dioxide content of the blood tells us by itself nothing about the acid-base equilibrium. Thus, in lobar pneumonia, we may have very low values for the carbon dioxide content of the blood with a normal hydrogen ion concentration. On the other hand, a normal or even increased value for carbon dioxide content or combining power does not preclude a true acidosis in the sense of an abnormally high hydrogen ion con-

centration. Again, the absence of any adequate theory of sodium chloride metabolism at the present day renders difficult of interpretation the values obtained for the quantity of sodium chloride in the blood.

There are, however, a certain number of tests which from both physiological investigation and clinical experience have been definitely shown to be of everyday value. Of these perhaps the most important and most generally used are the determination of the total non-protein nitrogen, or urea nitrogen, content of the blood and the determination of the sugar content. Mention should also be made of the gasometric method of determining hemoglobin, which may be used for the standardization of clinical hemoglobinometers.

Much has been written but little has been proved about the clinical significance of abnormal quantities of uric acid and creatinine in the blood. A very high value for uric acid with a normal value for the non-protein nitrogen is probably highly suggestive of gout. To what extent an increase in the uric acid or an increase in the creatinine content of the blood is of significance in the diagnosis and prognosis, respectively, of chronic nephritis remains to be determined.

The total fat and acetone bodies of the blood have been extensively studied, especially, of course, in diabetes, but other than in this disease these determinations are certainly not frequently required.

Of the inorganic ions, bicarbonate, chloride, phosphate, and calcium have received the most attention. Unfortunately the methods for the determination of calcium are too difficult to execute with accuracy to have been used very widely, though probably the determination of calcium will prove to be of diagnostic and prognostic value in some conditions, especially in tetany, rickets, and perhaps in certain cases with delayed coagulation time of the blood. Despite the many excellent, rapid and simple methods for the determination of chloride ion in whole blood and plasma and in spite of the large number of analyses that have been made, we are as yet wholly in the dark concerning the significance of the level of sodium chloride in the blood. We shall probably continue to labor in the dark until we have some understanding of the physiological and chemical systems of which sodium chloride is a part. Although recent work would seem to indicate that phosphate determination may be of value in the study of rickets, for the most part the situation with respect to the various forms of phosphorus in the blood is much as it is with respect to sodium chloride. Certainly, the phosphate level in the blood is not a simple linear function, as is perhaps uric acid in gout, of any particular underlying pathology. Un-

til we know more about the relationship of the different phosphorous compounds to one another and to other substances in the blood we shall probably not make much headway.

Many attempts have been made to differentiate various types of disease by investigating the blood through physico-chemical means. From a purely clinical point of view not much success has attended these investigations. But the field has only recently attracted very widespread attention and there can be no question but that the application of physico-chemical methods to the study of the blood will yield important results, perhaps rather in the nature of explanations of clinical phenomena than in the nature of tests which will be of diagnostic or prognostic value.

The clinical importance of blood chemistry is thus threefold. It gives to the physician new weapons for the investigation of disease in living patients. It affords a basis for the explanation of many signs and symptoms. It provides him with a few new signs, chemical tests, which may at times be of the greatest assistance in diagnosis, prognosis, or treatment.

THE RED CROSS AND PUBLIC HEALTH WORK.

ALTHOUGH much publicity has been given to the purposes and achievements of the Red Cross and the material support contributed has been enormous and almost general throughout this country, some criticism of its work in certain departments has been expressed by men eminent in medicine. This attitude appears in concrete form in the Report of the Trustees of the American Medical Association. The Trustees recommend that the association take action to convince the American Red Cross that its public health activities are no longer necessary.

The work which has been more generally criticised has been that of the Red Cross nurse, and especially her relations with people in rural communities. It is generally conceded that these nurses have practised medicine to some extent and that physicians have felt annoyed by the injudicious zeal of these Red Cross representatives. These objectionable practices have not, however, been endorsed by the Red Cross, but have been followed by nurses who responded to the wishes of the laity. Both the nurses and the people have been blameworthy, but usually without any deliberate purpose to encourage unlawful acts.

The Red Cross realizes that harm has been done and recognizes that the unwise behavior of some nurses has been due to the natural ambition of a kind-hearted woman to relieve suffering. That such nurses have not been

thoroughly taught the proper relations of the nurse to the physician and patient is a reasonable explanation for that side of the question. So far as the patients are concerned, no one could reasonably expect the average person to see beyond the opportunity for the relief of minor ailments. Physicians and a considerable number of other persons know that a well-trained nurse is familiar with the simple problems of emergencies and can deal with them efficiently, and hence the laity will be apt to apply for relief to the most available agency. The physician responds when sent for, whereas the Red Cross nurse goes about among the people advising and teaching, and would often see evidences of some disorders for which medical attention had not been sought. Physicians know how she should conduct herself, but the nurse may not realize the inherent complication and may exceed her powers. Controversy follows and either the physician or the nurse is discredited and the community is divided. Reports of actual conditions furnish many illustrations of failure due to poor diplomacy and improper activity.

Recognizing all this, is it best to ask the Red Cross to retire from this particular field? Those who would argue for the abolishment of all forms of medical and nursing service by the Red Cross would probably contend that the functions of this great organization consist in meeting the emergencies of fire, flood, war, famine and kindred needs in a material way. That is, to succor, through such means as transportation, shelter, food and clothing, but to leave medicine and its coördinate agencies to other organizations.

This appears plausible, but there are reasons for other provisions than the preparation and storage of bedding, tents, clothing and surgical dressings. We do not know when the next great disaster will come, nor when organized violence may appear, and since preparedness applies to the problems of civil life as well as to national security, this unique organization should be prepared to function. One great difficulty in some emergencies has been the difficulty in securing or mobilizing nurses. The Red Cross has nurses and they should be in useful activity. If we demand a cessation of pioneer work by these nurses, how will they be kept in condition? Is it wise to send all of them back to private duty with an obligation to respond to the Red Cross call when needed? Could they be mobilized if distributed widely under the changing domiciliary conditions of a nurse's life? Probably not so readily as when serving under assignment, with record of location in a central office.

Are there not localities now without public health nurses where the Red Cross nurses may do valuable work? That the need of careful

training, according to ethical standards, exists, we may readily concede and advocate without contending for the retirement of Red Cross activities in many places.

Constructive criticism is sought by the Red Cross and efforts are now under way to secure advice which will lead to the elimination of the faults of the past and useful work in the future. It should be clearly kept in mind that the Red Cross does not attempt to control the public health nursing situation in any locality, but rather to work in fields where no other public health organizations are engaged, and, further, to transfer all activities to local bodies as soon as communities will take up this work.

The medical profession should carefully consider all the questions involved, before asking the Red Cross to recall its nurses from localities now inadequately served. If there are other questions involved in the recommendations of the Trustees of the A. M. A. they should be definitely stated, rather than implied by somewhat general statements.

THE ATTITUDE OF THE STATE TOWARD THE DRUG ADDICT.

DURING the session of this year the Senate issued an order to the Department of Public Health for a report relative to facilities for the treatment and care of persons addicted to the use of narcotic drugs. The Department presented a report which gave a history of efforts at state control of the addict problem. In speaking of persons addicted to the intemperate use of narcotics the Commissioner states that "the basis of this treatment consists in the withdrawal of the drug and the building up physically and morally, as far as it may be possible, of persons under treatment for this condition. The first requisite is easy of accomplishment. The second is far more difficult, particularly as under our law all voluntary commitments may terminate upon three days' notice, and with rare exception the persons under treatment voluntarily will seek their release long before their physical and mental condition warrants it, finding further restraint irksome. It is almost the universal rule that persons returning to their former environment will sooner or later again seek readmission, setting up an 'endless chain' sort of procedure which achieves no result. It seems obvious, therefore, that the expenditure of the state's money for this ineffective treatment should not be continued, and that if the state is to undertake the care and treatment of persons addicted to the intemperate use of narcotic drugs, it should be upon such basis as would give the state an adequate chance for real success."

After an analysis of the functions of the various state institutions the Commissioner showed that all except one are not suitable for the development of a department adapted to the care of these unfortunate persons. Only in the state farm at Bridgewater can drug addicts be properly treated, for there is adequate space, and a competent medical director is in charge. A small additional appropriation for the Bridgewater institution would provide for all facilities and care of patients.

The Commissioner emphatically suggests that the drug addict should be under control for a sufficient period of time, and the operation of the present law interferes with necessary treatment, for under voluntary commitments the patient may elect to leave the hospital after a stay of a few days. Hence the recommendation was made that the present law should be amended so as to cut out the patients' privilege of leaving after three days. Since the Norfolk Hospital was loaned to the government for a period terminating in 1924 and is therefore not available, the following amendment to the law is also suggested:

"Any of the judges named in Section 50, or a judge of the municipal court of the city of Boston, may commit to the McLean Hospital, to the State Farm, or to a private licensed institution, by an order of commitment."

The report is creditable, but on May 11 the Senate voted "no legislation necessary."

This leaves Massachusetts in the same deplorable situation which has existed for several years.

NEWS ITEMS.

THE LAWRENCE MEDICAL CLUB.—The monthly meeting of the club was held Monday evening, May 22, with Dr. McAllister of Prospect Street. Dr. Merrill was chairman for the evening. The subject was "Impressions of Poland Gained While in Red Cross Service," the speaker being Dr. Snow of Newburyport.

SUICIDES.—Among the professions physicians head the list of suicides: 86 doctors, 57 judges, 37 bank presidents, 21 clergymen, 10 editors, 7 mayors and 7 members of legislatures took their own lives in this country in 1921. This record seems to indicate that occupational strain is greater in medicine than in other occupations.

THE WESSON MATERNITY, SPRINGFIELD, MASS.—This hospital has recently recorded the 10,000th case and the graduation of the 1000th pupil nurse. It was opened in December, 1908. Originally equipped for the care of 20 cases, it has now accommodations for 48. The de-

mand, however, exceeds the capacity. There are 24 single bed rooms, 16 beds in two and four-bed rooms and a ward of 8 beds. The original bequest was \$200,000 and an endowment of equal amount.

Until three years ago the hospital was self-supporting. During the first year 300 patients were admitted and in the last year there were 906; 9209 living infants have been born within its walls, and 428 premature infants have been given especial care.

Cæsarean section has been performed 126 times. The maternal deaths have been a little over one-half of one per cent.

This hospital is a so-called open hospital. Any physician may take advantage of its facilities, subject to its rules.

The pupil nurses, before being admitted, have had 18 months' training in general hospitals. The charges for patients vary from \$15 to \$56 per week, according to the accommodations desired. All patients paying less than \$35 per week participate in the charitable features of the hospital. No bequests or contributions have been received since the original ones by the late D. B. Wesson and it is hoped that public-spirited citizens will come forward and meet the deficiency now existing.

THE SOLDIERS' HOSPITAL.—In a recent editorial the *Springfield Republican* predicts the creation of a New England hospital for soldiers afflicted with mental and nervous ailments, as provided by the Langley bill.

The people of Northampton have offered a tract of land between the towns of Florence and Leeds. The government is considering the desirability of the use of this land rather than a location near Boston. Representative Paul H. Hines of South Boston has introduced an order protesting against the location in the western part of the state, basing his objections on the grounds that a majority of the patients would be from the eastern sections and that friends of patients would be inconvenienced by the length of travel imposed.

DR. FRANCIS X. MAHONEY, Health Commissioner of the city of Boston, attended the meeting of the American Medical Association at St. Louis, May 22 to 26. Dr. Mahoney was also elected a member of the committee on reorganization of the American Public Health Association, which held a section meeting at St. Louis during the same week.

DR. B. W. CAREY, Deputy Commissioner, State Department of Health, represented the State Department of Health at the meeting of the American Medical Association.

REORGANIZATION OF THE EAR, NOSE AND THROAT DEPARTMENT OF THE BOSTON DISPEN-

SARY.—Under a plan of reorganization in the Department of Diseases of the Ear, Nose and Throat of the Boston Dispensary, effective May 15, Dr. William E. Chenery and Dr. H. J. Inglis become surgeons-in-chief, each to be head of an independent six months' service. Dr. Inglis, who has already assumed charge of his service, will have the period February to July, inclusive. The period August to January, inclusive, will be taken by Dr. Chenery. Dr. Frederic C. Cobb, who for 35 years has served on the staff, and for the past 18 years as head of the department, has been appointed as consultant.

DEATH RATE IN BOSTON.—During the week ending May 20, 1922, the number of deaths reported was 198, against 193 last year, with a rate of 13.52. There were 23 deaths under one year of age, against 29 last year. The number of cases of principal reportable diseases were: Diphtheria, 54; scarlet fever, 51; measles, 236; whooping cough, 15; typhoid fever, 1; tuberculosis, 49. Included in the above were the following cases of non-residents: Diphtheria, 4; scarlet fever, 7; measles, 3; tuberculosis, 12. Total deaths from these diseases were: Diphtheria, 3; measles, 1; tuberculosis, 15. Included in the above were the following cases of non-residents: Tuberculosis, 4.

ESSEX SOUTH DISTRICT MEDICAL SOCIETY.—The following named officers were elected for the year 1922-1923: President, Dr. F. W. Baldwin, Danvers; vice-president, Dr. J. A. Shatswell, Beverly; secretary, Dr. R. E. Stone, Beverly; treasurer, Dr. G. Z. Goodell, Salem; librarian, Dr. C. M. Cobb, Lynn; commissioner of trials, Dr. J. E. Simpson, Salem; councillors, Dr. W. T. Hopkins, Lynn; Dr. J. W. Trask, Lynn; Dr. Loring Grimes, Swampscott; Dr. J. F. Donaldson, Salem; Dr. W. G. Phippen, Salem; Dr. A. N. Sargent, Salem; Dr. H. K. Foster, Peabody; Dr. J. F. Jordan, Peabody; Dr. G. M. Kline, Beverly; Dr. P. P. Johnson, Beverly; Dr. S. W. Mooring, Gloucester; nominating councillor, Dr. P. P. Johnson, Beverly; alternate nominating councillor, Dr. W. T. Hopkins, Lynn; censors, Dr. J. F. Donaldson (supervisor), Salem; Dr. C. L. Curtis, Salem; Dr. R. E. Foss, Peabody; Dr. A. T. Hawes, Lynn; Dr. H. P. Bennett, Swampscott; executive committee, Dr. C. M. Wilson, Salem; Dr. A. S. Torrey, Gloucester; Dr. G. H. Kirkpatrick, Lynn.

FRANKLIN DISTRICT MEDICAL SOCIETY.—The following named officers were elected at the

annual meeting held May 16, 1922: President, H. A. Sutor, South Deerfield; vice-president, F. A. Millett, Greenfield; secretary, Charles Moline, Sunderland; treasurer, Charles Moline, Sunderland; commissioner of trials, P. F. Leary, Turners Falls; censors, B. P. Croft (supervisor), Greenfield; C. L. Upton, Shelburne Falls; J. W. Cram, Colrain; H. N. Howe, Greenfield; A. E. Johnson, Jr., Greenfield; councillors, B. P. Croft, Greenfield; G. P. Twitchell, Greenfield; councillor for nominating committee, G. P. Twitchell (principal), Greenfield; B. P. Croft (alternate), Greenfield.

DR. L. R. WILLIAMS, formerly deputy commissioner of health of New York State and for the last four years director of the Rockefeller Commission on the Prevention of Tuberculosis, has been appointed managing director of the National Tuberculosis Association in the place of Dr. Charles J. Hatfield of Philadelphia, who resigned to give most of his time to tuberculosis work in Philadelphia.—*Science*.

THE MASSACHUSETTS MEDICAL SOCIETY this year has made every effort to make the coming meeting on June 13 and 14 one of great interest and of practical value. The programs of the section meetings have been carefully worked out to be of general interest and the demonstrations at the Medical School deserve a generous attendance. A record number of members is expected during the two days.

Miscellany.

NARCOTIC DRUG SITUATION.

IN an article published in *American Medicine*, Dr. Lester D. Volk, member of Congress from New York, states:

"One of the rottenest medical scandals in medical history was the promotion scheme and exploitation of the narcotic drug situation begun by an insurance agent, the strength of whose propaganda and advertising came from the support given him by men high up in the councils of medicine and in positions of control and power in medical organizations.

"The investigations of the Whitney committee (New York) placed things in their proper light and the resulting exposure halted activities along these lines. Since that time there has grown up a new coterie who have set themselves up as the all-knowing oracles in matters of narcotic addiction. . . .

"The profession must be distracted by no misleading issues. The narcotic question is of great interest, not only to the doctor but to the public and the nation as well.

"This is an economic problem of tremendous importance which becomes more important as the medical profession loses its grip upon its control.

"I have introduced a resolution in Congress asking for a full and free investigation on the subject of narcotic addiction, the method of handling and treatment by physicians, institutions and sanitariums, the effectiveness of the present laws, rules and regulations to control smuggling, trafficking and abuse of narcotic drugs, and for the purpose of drafting legislation for the control of this evil.

"Because of the facts which I have mentioned about the condition of affairs within the profession, the great need for knowledge upon all phases of this complex subject, every doctor, every medical society and every unbiased agency and organization looking toward a solution of this great problem should endorse this resolution."

NARCOTIC DRUG REGISTRATION.

MEMBERS of the medical profession are again renewing acquaintance with Uncle Sam. Through the Internal Revenue Bureau he is issuing annual notices and sounding warning for all to make their usual registration under the Harrison narcotic law or be subject to the numerous penalties inscribed for being delinquent.

The grand old gentleman of the plug hat and flowing goatee claims that the warning is necessary to the professional folk at this time as 1600 of them in Massachusetts alone let July 1 go by last year without attending to this duty, and consequently when they got in touch with Collector Malcolm E. Nichols' office they were taxed an additional 25 per cent.

There should be no delay in filling out the form and filing it this year. The Bureau is sending it out weeks in advance of the due date, July 1, with a reminder to the 7200 practitioners in the state who register in Class 3 at the rate of \$3 yearly, to attend to this important matter right away.

Applicants are further reminded that all those who register in Class 3 are required to register in Class 5 in order to dispense or deal in untaxed narcotic preparations, although no additional tax is necessary for this registration.

Class 3 applicants will forward with their application an inventory of non-exempt narcotic drugs and preparations in their possession on the date of application. This is necessary before the stamp is issued from the Bureau allowing them to continue prescribing or using narcotics under the Harrison Act.

MALARIA PARASITES.

AN interesting study of the length of life of the *Anopheles* and the duration of viability of the malarial plasmodium during its presence in the mosquito has been made by Bruer Mayne of the United States Public Health Service. His conclusions are as follows:

1. The longest period of survival of uninfected *Anopheles* kept under artificial conditions on a diet of split dates and water, at a temperature of 45° to 75° F., was 231 days. A lot of 85 specimens of *A. punctipennis* kept without blood lived an average of 90.4 days. Eight of these were kept a period of 175 to 203 days. In mosquitoes of this species, given one to three feedings of blood previous to a diet of fruit juices, 22 specimens averaged a longevity of 100 days, and six specimens lived 176 to 217 days. A single specimen of *Culex territans* survived 265 days on a diet exclusively of fruit juices at a temperature of 48° to 76° F.

2. Plasmodia of malaria distinctly recognizable by their morphology and staining were detected in the salivary glands of five specimens of *A. punctipennis*, 68, 70, 71, 83 and 92 days, respectively, after infection. These mosquitoes had been allowed to bite a crescent carrier on a single occasion and were maintained at room temperature (59° to 83° F.) for six days, then kept in a container registering temperatures of 44° to 78° F. for the remainder of the experiment.

3. Plasmodia of malaria proved to be viable by inoculation into a human host from the bite of a mosquito infected 55 days previously. Mosquitoes failed to convey malaria plasmodia through their biting, 61, 66 and 67 days, respectively, after becoming infected (gland sporozoites obtained). These three mosquitoes were kept under conditions identical with those in which viable sporozoites were demonstrated in the five specimens mentioned above.

CHANGES IN THE STATE DEPARTMENT OF PUBLIC HEALTH.

DR. FRANCIS A. FINNEGAN, State district health officer, has resigned to become director of hygiene of the city of Lowell, the resignation taking effect on February 15. Dr. Finnegan was appointed July 1, 1916, as district health officer of the Wachusett health district, with headquarters in Fitchburg.

Dr. Oscar A. Dudley, who is now serving as district health officer in the Berkshire district, is to be transferred to the Worcester county district to succeed Dr. Finnegan. Dr. Dudley served from December, 1919, to September, 1920, as district health officer of the Wachusett district.

Dr. Leland M. French, who has been epidemiologist in the central office of the department, since June, 1921, will be transferred to the Berkshire district to fill the vacancy caused by Dr. Dudley's change to the Worcester county district. An examination to fill the vacancy in the position of epidemiologist will be held April 3 and 4. The names of those passing the examination will be placed on an eligible list to fill future vacancies in the district health officer force and in the position of epidemiologist. Dr. French will continue as epidemiologist pending the result of the examination. A new appointment will probably be made about May 1 and Dr. French will take over the Berkshire district at this time.

Dr. Fredrika Moore has been connected with the Division of Hygiene, State Department of Public Health, since November 1, 1921, as pediatrician. Dr. Moore was graduated from Wellesley College and Boston University School of Medicine. She has served as a member of the staff of the children's department of the Massachusetts Homœopathic Hospital and as instructor in the Boston University School of Medicine. Dr. Moore has practised medicine in Winchester since completing her medical training, serving as a school physician, as director of tuberculosis work in the Winchester Board of Health, and as one of the directors of the Winchester Visiting Nurse Association.—*The Commonwealth*, January and February, 1922.

TUBERCULOSIS SCHOOL AT OTEEN, N. C.

A TUBERCULOSIS school similar to that held last year will be conducted by the United States Public Health Service from June 1 to 30 at the government sanatorium in Oteen, N. C. The class will consist of 30 medical officers and 30 nurses, who will be drawn for the most part from other Service hospitals. A few others who are identified with tuberculosis work in different parts of the country, although not employed by the government, will be admitted.

The first school, which graduated 22 physicians and 19 nurses who had been carefully selected from the 66 hospitals of the Service, was patterned after the summer school at Saranac Lake, N. Y., with necessary adaptations to the special work required.

Oteen hospital, with a capacity of 1100 beds, is near Asheville, N. C., and is conducted especially for tuberculosis patients. This delightfully situated and easily accessible sanitarium was built during the war by the army and was later turned over to the Public Health Service. It is in close proximity to the Public Health Service hospital at Biltmore.

DEFECTIVE VISION.

THE following suggestions are being sent broadcast from the Eye Sight Conservation Council of America, Times Building, New York City:

Your child's usefulness, happiness and success in life are dependent largely upon the care you give it, the watchfulness you keep over it, and the intelligence with which you guide it.

You are responsible to a great degree for the actions of its future, be they for good or bad. A child forms its habits from what it sees and the habits become a permanent part of its whole life.

If a child sees clearly he or she will think clearly. The eye is the mirror of the brain and if each image that the eye reflects on the brain is in proper perspective the impression made and concepts received will be correct. But if the vision is defective the impressions made and concepts received will be defective, and thoughts and opinions expressed will be distorted.

This is not only true of a child but it is true also of older people. The World War proved that about 29 per cent. of the young manhood of the nation between the ages of 21 and 31 years were suffering from defective vision.

The only way to correct this alarming condition is to adopt corrective treatment early in life. It is the mission of the Eye Sight Conservation Council of America, with headquarters in New York City, to acquaint the public with the great need for better vision.

PROTEST AGAINST THE PROPOSED TOOTH BRUSH TARIFF.

THE New York City Department of Health has issued a copy of a letter to the chairman of the Finance Committee, United States Senate, protesting against the duty on tooth brushes. The statement follows that there are less than a dozen manufacturers of tooth brushes in this country, and that imported tooth brushes meet the needs of the vast majority of our citizens in quality and price.

Further, that the cost of illness which would follow the omission of the use of the tooth brush would far outweigh any income from the proposed tariff. Such increase in cost would tend to nullify much work done by health departments all over the country, for a great deal of effort has been put forth in instructing people regarding the necessity of using the tooth brush.

THE MANAGEMENT OF RESTAURANTS, LUNCH ROOMS, HOTELS AND PUBLIC COOKING ESTABLISHMENTS BY THE CITY OF QUINCY.

THE regulations adopted by the Department of Health of Quincy are ideal, for almost all possible requirements are in force which may remove the possibility of disease resulting from the preparation, storage and handling of food.

One very important feature is found in regulation number 9, which appears as follows:

9. The Health Commissioner may require any person intending to work in a restaurant, lunch room, hotel or other public cooking establishment to submit to a thorough examination to ascertain whether he is afflicted with any contagious, infectious or other disease or physical ailment. All such examinations shall be made at the expense of the Department of Health. Any person so examined may have his physician present at the examination.

This requirement is comforting, both because it appeals to the esthetic as well as the sanitary ideals of discriminating people. There are certain human carriers with potential dangers which are extremely unpleasant to consider. The enforcement of this regulation alone will be a great credit to the Health Department of Quincy.

This requirement has the force of law because it has been approved by the State Department of Public Health and the Attorney-General. Dr. F. E. Jones, Health Commissioner of Quincy, is entitled to great credit for the formulating of these regulations.

All the regulations may be found in the recent issue of *The Commonwealth* for January and February, 1922.



RÉSUMÉ OF COMMUNICABLE DISEASES.

April, 1922.

GENERAL PREVALENCE.

THERE were reported in April 8,516 cases of communicable diseases, as compared with 10,201 in March, a decrease of 1,685 cases. A general decrease in the total number of cases reported was evidenced in all of the common communicable diseases (chicken-pox, diphtheria, mumps and scarlet fever), with the exception of measles and German measles.

Diphtheria decreased in the number of cases reported from 718 in March to 581 in April.

Dog-bite requiring anti-rabic treatment was reported in 18 instances. This is a larger number than was reported in March, but it is in proportion to the steady increase in this condition which has been occurring for several months.

Encephalitis lethargica also is increasing in

incidence. In February there were 5 cases reported, in March 28, and in April 47. Investigation of all cases of this condition reported has not as yet added to our knowledge of the disease.

Epidemic cerebrospinal meningitis was reported in 15 instances. This is about the usual number of cases reported.

The number of cases of *German measles* is increasing slightly. The total for April was 89.

Gonorrhea and syphilis showed a slight decrease in the number of cases reported from the totals of last month, there being 373 and 181 cases respectively.

Influenza showed a marked decrease from 5,221 cases in February and 1,648 cases in March to 163 cases in April. Epidemic conditions have prevailed in previous years, since this disease was made reportable, and it is therefore impossible to judge whether or not this is the usual seasonal decrease.

Measles increased from 2,657 in March to 3,621 in April. A similar increase was noted in April, 1921.

Mumps. There were 506 cases of mumps reported during the month, a slight decrease from the total for March.

There were 528 cases of *lobar pneumonia* reported during the month, which shows a decrease of 460 cases.

Scarlet fever showed a decrease to 743 cases. This is nearly 200 less than the totals for January, February or March of this year.

Tuberculosis, pulmonary, and tuberculosis, other forms, were reported in about the usual numbers, there being 609 and 97 cases respectively.

Typhoid fever was reported in but 29 instances. This is the smallest number of typhoid fever cases to be reported in any one month since 1910 with the exception of February, 1920, when there were but 22 cases reported. The figures by months are not available previous to 1910, but it seems fair to say that February, 1920, and April, 1922, give the lowest figures since the disease was made reportable in this state.

Whooping cough decreased in number of cases reported from 523 in March to 339 in April. This figure is low when compared with that for April, 1921, when 707 cases were reported.

RARE DISEASES.

Anterior poliomyelitis was reported from Boston, 2; Lynn, 1; total, 3.

Dog-bite requiring anti-rabic treatment was reported from Boston, 2; Cambridge, 1; Lowell, 10; Methuen, 1; Rowley, 2; South Hadley, 1; Winthrop, 1; total, 18.

Dysentery was reported from Springfield, 1.

Encephalitis lethargica was reported from Boston, 21; Brockton, 3; Brookline, 1; Fall

River, 1; Chelsea, 1; Lawrence, 1; Lynn, 1; Marion, 1; Marshfield, 1; Millbury, 1; Newburyport, 2; North Brookfield, 1; Reading, 1; Springfield, 1; Waltham, 1; Watertown, 1; Woburn, 1; Worcester, 7; total, 47.

Epidemic cerebrospinal meningitis was reported from Brockton, 2; Cambridge, 2; Clinton, 1; Fall River, 2; Lawrence, 1; Medfield, 1; North Adams, 1; Lynn, 2; Revere, 1; West Springfield, 1; Woburn, 1; total, 15.

Pellagra was reported from Boston, 1; Waltham, 1; total, 2.

Septic sore throat was reported from Boston, 2; Greenfield, 2; Lynn, 1; Plymouth, 1; Somerville, 1; total, 7.

Tetanus was reported from Marlboro, 1.

Trachoma was reported from Boston, 4; Brockton, 1; Cambridge, 1; Melrose, 1; total, 7.

Trichinosis was reported from Holyoke, 1.

RADIUM INSURANCE.

THE United States Radium Corporation makes the following announcement in regard to insurance rates on radium:

"Dr. George E. Pfahler of Philadelphia, a few months ago, became very much interested in radium insurance because an announcement was made that Lloyd's of London had raised the annual premium to 5 per cent. Refer to editorial comment in the *Journal of Radiology*, Volume III, No. 4, April, 1922, page 145.

"Dr. Pfahler called for assistance of the radium producers in order to secure a radium policy that would give owners protection under all reasonable conditions, and he suggested that a policy obligating the company to pay 75 per cent. of any loss instead of 100 per cent. would doubtless give a more favorable rate and a coverage that would be acceptable to doctors.

"Working on this suggestion, we are pleased to announce that the Insurance Company of North America, a strong, old and reliable American insurance company, is prepared to write policies covering all risk, but with a loss payment of 75 per cent. This policy is offered at 2 per cent. per year.

"In developing this policy, a firm of insurance brokers in New York rendered very valuable assistance. We, therefore, take the liberty of suggesting that if you are interested in radium insurance, you communicate with Mr. O. M. Middleton of the firm of Alberti, Baird & Carleton, Inc., 50 Pine Street, New York. A request to Alberti, Baird & Carleton, Inc., will bring you a specimen policy.

"We have studied the radium insurance question for a long time and are glad to bring this policy to your attention since it has our complete approval."

THE PREVENTION OF RABIES.

BECAUSE of outbreaks of rabies in the cities and towns adjacent to Boston, and the fact that since last July there have been reported to the Health Department of the city of Boston nine cases of rabies and approximately 200 cases of dog-bite, it is deemed expedient to solicit the aid and coöperation of the public to the extent of having all dog owners notified that for a period of 90 days no dog should be allowed at large unless leashed.

In the prevention of the spread of rabies we consider this method more humane to the animal and just as efficacious in its results.

In addition, dog owners should be acquainted with the symptoms of rabies, and this information may be obtained on the back of the dog license issued by the Police Department.

F. X. MAHONEY, M.D.

THE DISCOVERY OF ETHER.

DR. JOHN B. DEEVER credits Long with the discovery of ether in 1842, in his address before the Medical Society of the State of New York, which met April 18, 19 and 20, 1922.

HEMOLYTIC SERA FROM FOWLS.

IN *Science*, May 19, 1922, Roseoe R. Hyde, of the School of Hygiene and Public Health of the Johns Hopkins University, refutes Citron's claim that the chicken is one of the best adapted animals for the production of hemolytic sera. He states that "in point of fact we find this animal one of the poorest hemolysin producers that have come within our experience."

INFANT MORTALITY.

THE Buffalo (N. Y.) Department of Health has published an analysis of the infant mortality of that city, showing that in 1890 the death rate under one year was 221.36 per 1000 births reported, and in 1921 the rate fell to 95.63. Through a process of eliminating the causes of death over which a health department has no control, the department contends that the death rate for cases due to preventable conditions is only 37.43, instead of 95.63.

The Health Commissioner has organized a committee consisting of obstetricians and pediatricists for the purpose of studying the entire subject. Especial attention will be given to the causes and prevention of still births and premature births.

THE NORTHAMPTON STATE HOSPITAL.

THE report of this hospital for mental diseases for 1921 shows that the demand for beds exceeds the proper facilities, for, although the accommodations are recorded by the Department of Mental Diseases to be sufficient for about 820 patients, 1010 were supported in 1921, and it is expected that this number will be exceeded this present year. The trustees acknowledge serious overcrowding, which interferes with proper care of the patients.

The cost of maintenance has been reduced by about \$31.00 as compared with the preceding year. This is explained both because of the lessened cost of supplies and also by reason of an extreme shortage of help. At times there were about half the usual number of employees on the pay roll.

In the superintendent's report the statement is made that there has been a marked diminution in the number of cases in which alcohol was regarded as the chief cause of mental trouble. The study of the influence of internal glandular secretions on mental troubles has been continued, with encouraging results.

The detailed reports of the diseases under observation are of interest to students of mental disorders and show to all concerned in state problems the burdens imposed on society.

ALMOST twice as many men as women die from tuberculosis in New York City, according to statistics set forth by Godias J. Drolet in *The Journal of Industrial Hygiene*, compiled from the *Bulletin* of the New York Tuberculosis Association. From 63.1 per cent., the male death rate per 100,000 from this disease has decreased to 59 per cent. in 1920. The greater prevalence of the disease among men is ascribed to overwork and unhygienic workshops. Since 1917, when women entered industry in great numbers, there has been a noticeable increase in the female death rate.

THERE are one million drug addicts in the United States, according to estimates prepared by a committee appointed by the Secretary of the Treasury to investigate the use of drugs in the country. The report further states that only from 10 to 25 per cent. of the quantity of drugs imported is actually needed to supply the demands of legitimate medical purposes. Much of the distribution of the drugs is through "underground" channels.—*The Nation's Health*.

RECENT DEATH.

JOHN JOSEPH HANLEY, a fellow of the Massachusetts Medical Society since 1895, died at his home in Southercroft, Motherwell, Scotland, July 26, 1921, on his 54th birthday. He is survived by his widow. Dr. Hanley was formerly a practitioner in Boston, having removed to Scotland in 1905.

SOUTHERN MINNESOTA MEDICAL ASSOCIATION.

Mid-Summer meeting June 19th and 20th, 1922, at Rochester, Minnesota. Among the speakers from outside the state who will be guests of the Association and will appear on the Scientific Program are: Dr. W. B. Cannon, Boston, Massachusetts; Dr. Judson Daland, Philadelphia, Pennsylvania; Dr. Fred H. Albee, New York City, New York; Dr. William B. Coley, New York City, N. Y.; Dr. George E. Shambaugh, Chicago, Illinois; Dr. Willis Campbell, Memphis, Tennessee; Dr. Herman L. Kretschmer, Chicago, Illinois; Dr. Preston H. Hickey, Detroit, Michigan; Dr. Nathaniel G. Alcock, Iowa City, Iowa; Dr. George V. I. Brown, Milwaukee, Wisconsin; Dr. M. G. Seelig, St. Louis, Missouri; Dr. George W. Heuer, Cincinnati, Ohio.

The program for the forenoon sessions of Monday June 19th, and Tuesday, June 20th, will consist of Surgical and Medical Clinics, and Demonstrations in all departments at the following hospitals: St. Mary's Hospital, Colonial Hospital, Worrell Hospital, Curie Hospital, Olmstead Hospital, Clinic Building.

The program for the afternoon sessions will consist of Scientific Papers, and the Mid-Summer Banquet will be held at the Gymnasium, High School Building, Monday evening, June 19th, 1922, at 6 p. m.

Make hotel reservations early by addressing Mr. Roy Watson, Chairman Committee of Arrangements, Southern Minnesota Medical Association, Rochester, Minnesota.

The official program will be published by May 15 1922.

DR. H. W. MEYERDING, *Chairman*, Rochester.

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

REPORTED WEEK ENDING MAY 13, 1922.

Disease	No. of Cases	Disease	No. of Cases
Chicken-pox	100	Ophthalmia neonatorum	11
Diphtheria	125	Pellagra	2
Dog-bite requiring anti-rabic treatment	6	Pneumonia, lobar..	117
Dysentery	2	Scarlet-fever	153
Encephalitis lethargica	12	Septic sore-throat.	4
Epidemic cerebro-spinal meningitis	3	Syphilis	20
German measles...	34	Suppurative conjunctivitis	9
Gonorrhea	82	Trachoma	1
Influenza	9	Tuberculosis, pulmonary	108
Malaria	2	Tuberculosis, other forms	29
Measles	1,025	Typhoid fever	10
Mumps	124	Whooping-cough ..	93

REPORTED WEEK ENDING MAY 20, 1922.

Disease	No. of Cases	Disease	No. of Cases
Antinomycosis	1	Ophthalmia neonatorum	8
Chicken-pox	109	Pneumonia, lobar..	94
Diphtheria	122	Scarlet-fever	197
Dog-bite requiring anti-rabic treatment	7	Syphilis	31
Encephalitis lethargica	4	Suppurative conjunctivitis	18
Epidemic cerebro-spinal meningitis	3	Trachoma	4
German measles...	21	Tuberculosis, pulmonary	167
Gonorrhea	83	Tuberculosis, other forms	17
Influenza	8	Typhoid	6
Measles	1,001	Whooping-cough	119
Mumps	153		

Correspondence.

CONNECTICUT STATE MEDICAL SOCIETY, ANNUAL MEETING, MAY 17 AND 18.

Mr. Editor:

In company with Dr. Chase I attended the annual meeting of the Connecticut State Medical Society held in Bridgeport, May 17 and 18. In the morning of the 17th a meeting of the delegates from the various counties was held at which reports were heard from all the standing and numerous special committees, and a spirited discussion took place relative to the licensure of candidates by the Eclectic Board who had been refused license by the regular board, and the case of one individual had been worked out rather thoroughly, and resolutions were offered directing the committee on medical examination and medical education to take action to have that license recalled, and directing that that committee should take similar action on all other cases similarly licensed. The committee on history of the medical profession of Connecticut in the world war reported that their work of collecting data was progressing rapidly and soon would be ready for publication. They have gone into this matter quite thoroughly. They have adopted group insurance with the Aetna Insurance Company at a price much lower than we were able to obtain in Massachusetts. They had had no cases for medical defense throughout the year, and as there had been no meeting of the State Legislature during the year there was no work done by the committee on legislation. They showed a very prosperous financial condition.

The officers for the ensuing year are: President, David Russell Lyman, of Wallingford; vice-presidents, Samuel Pierson of Stamford, Conn., and Frederick T. Simpson, of Hartford; secretary, Charles Williams Comfort, Jr., of New Haven; treasurer, Phineas H. Ingalls, of Hartford. They show a membership of 1,077, being a gain of 11 during the year, and there are some 600 doctors in the state who are not members of the society.

There was considerable discussion relative to the codifying and amending of the medical practice act, and it was finally decided it would be better to take it up a small part at a time rather than to put the whole matter before the Legislature at any one session.

One of the interesting features of the meeting was the report by the secretary of each county society of the work done by that county during the year, including the meetings held, the work in their hospitals, and public health matters in general in their district.

In speaking of education of the public in medical matters, attention was called to the frequency with which articles written by physicians of good standing are placed in the papers alongside of advertisements of quack medicines.

Also mention was made of a movement for closer coöperation between the committee on National legislation and the national legislatures of the state. In the afternoon of Wednesday and Thursday very interesting scientific meetings were held, and during both mornings several clinics were held at each of the hospitals, including demonstration of some of the cases of smallpox which they have been having in Bridgeport.

On Wednesday evening a smoker was held at the University Club, at which serious entertainment was interspersed with much fun; while Thursday evening the annual banquet was held at the Hotel Stratfield, which was well attended, the principal address of the evening being by Dr. George E. Vincent. Presi-

dent of the Rockefeller Institute, whose subject was "Medical Education in Many Lands."

Yours very truly,

A. P. MERRILL,

Secretary, Berkshire District Medical Society.

ALEPPO BOIL.

MAY 19, 1922.

Mr. Editor:

In the BOSTON MEDICAL AND SURGICAL JOURNAL for May 18th, there is an article on Aleppo Boil by Dr. A. K. Yoosuf which reveals a surprising lack of information regarding the etiology and treatment of the disease. It has long been generally accepted that Aleppo boil is caused by *Leishmania tropica*, an organism morphologically similar to that which causes kala-azar.

The organism was first adequately described by James Homer Wright¹ in 1903. He found it in a piece of tissue excised from a case of Aleppo boil in the Out-Patient Department of the Massachusetts General Hospital. This information can be found in an old edition of Manson's text-book on tropical medicine.

Recently published text-books on the subject recommend valuable methods of treatment not mentioned by Dr. Yoosuf. Both Manson² and Castellani³, for example, advocate the intravenous use of tartar emetic which, as many believe, acts as a specific against *Leishmania tropica*.

Yours sincerely,

G. C. SHATTUCK.

REFERENCES.

¹ Jour. of Med. Research, 1903-4, Vol. 5, p. 472.

² Manson's Tropical Diseases, 7th ed., 1921, Manson-Bahr.

³ Manual of Tropical Medicine, 3d ed., 1919, Castellani and Chalmers.

NOTICES.

MASSACHUSETTS ASSOCIATION OF ASSISTANT PHYSICIANS.—The next meeting of the Massachusetts Association of Assistant Physicians of the Department of Mental Diseases will be held at the Monson State Hospital, Palmer, Mass., on June 16, 1922. A program will be rendered by the members of the staff. Those arriving in the morning will have the opportunity of inspecting the institution.

BOSTON SANATORIUM, FORMERLY BOSTON CONSUMPTIVES' HOSPITAL. Name changed by City Ordinance, January 18, 1922. Trustees' office, 1001 City Hall Annex. Hospital, 249 River Street, Mattapan. Men, women and children, residents of Boston, in all stages of pulmonary tuberculosis, are admitted. Patients with non-pulmonary tuberculosis are admitted when there is room for them. Apply to the Superintendent of the Hospital, Dr. A. J. White, or to the Superintendent of Nurses of the Out-Patient Department, Miss Gardner, for admission. Out-Patient Department, 13 Dillaway St., Boston. Open on Mondays, Wednesdays Fridays and Saturdays from 9 to 11 a.m., and on Monday evenings from 7 to 9 p.m. On Saturday mornings there is a special clinic for children. Telephones: Hospital, Milton 2310; O.P.D., Beach 3430 and 2040. Milton cars from Forest Hills pass the Hospital.

NEW YORK AND NEW ENGLAND ASSOCIATION RAILWAY SURGEONS.—The thirty-second annual session of the New York and New England Association Railway Surgeons will be held at the Hotel McAlpin, Broadway and 34th Street, New York City, on Saturday, October 28, 1922, under the presidency of Dr. Donald Guthrie of Sayre, Pa. A very attractive and interesting program is being arranged for this session.

PUBLIC HEALTH LECTURERS FOR THE
YEAR 1922.

The Committee on Public Health of the Massachusetts Medical Society has been able during the past three years to arrange with well known specialists in various medical fields to give talks at meetings of the District Medical Societies on subjects of interest and importance to all practitioners. It is a pleasure to announce that a similar arrangement has been made this year and that the gentlemen named below are willing, without expense to the District Society, to give occasional talks of thirty to forty minutes on subjects relating to the promotion of public health, extending opportunity for questions and discussion. It is suggested that medical societies consider meeting at neighboring public institutions, since such meetings have been most successful in the past, particularly at the tuberculosis sanatoria and state hospitals for the insane.

José Penteado Bill, M.D., Doctor of Public Health, Specialty: Preventive Medicine.

Frank C. Dunbar, M.D., Bacteriologist, Instructor in Bacteriology and Pathology, Tufts College Medical School.

Walter B. Fernald, M.D., Superintendent, Massachusetts School for the Feeble-minded.

Timothy Leary, M.D., Professor of Pathology, Tufts College Medical School; Medical Examiner, Suffolk County.

Edwin H. Place, M.D., Physician-in-Chief, South Department, Boston City Hospital. Specialty: Contagious Diseases.

C. Morton Smith, M.D., Chief of Department of Syphilis, Massachusetts General Hospital.

George Gilbert Smith, M.D., Assistant in Department of Genito-Urinary Diseases, Massachusetts General Hospital. Specialty: Genito-Urinary Diseases.

Lesley H. Spooner, M.D., on Staff of Out-Patient Department, Massachusetts General Hospital, Specialty: Specific Diagnosis and Treatment of Pneumonia.

William C. Woodward, M.D., Health Commissioner, City of Boston.

George H. Wright, D.M.D., Lecturer on Dental Hygiene, Harvard Dental School. Specialty: Dental Surgery.

Thomas F. Kenney, M.D., Director of School Hygiene, City of Worcester. Specialty: Full time School Health Officer.

Secretaries of District Medical Societies writing to ask for these lecturers will kindly designate the topic, the place and the hour of meeting as well as the name of the desired speaker, thus eliminating unnecessary correspondence. Please address communications to the Secretary of the Committee, Anne Lee Hamilton, M.D., 164 Longwood Ave., Boston 17.

[Note: The Committee on Public Health feels that this notice may have escaped attention, for few applications have been received. Each lecturer is an authority and would present his subject in an interesting and instructive manner.]

NEW ENGLAND SURGICAL SOCIETY.

C. A. PORTER, *Pres.* P. E. TRUESDALE, *Sec.*
H. L. SMITH, *Vice-Pres.* P. P. JOHNSON, *Treas.*

To the Members of the Society:

The fifth annual meeting will be held at Burlington, Vt., September 22 and 23, 1922, with headquarters at Hotel Vermont.

The following is a tentative outline of the program:

. FRIDAY.

9 A. M.—Operative Clinic, Mary Fletcher Hospital.

11 A. M.—Dry Clinic, Mary Fletcher Hospital.

12:30 P. M.—Lunch at Ethan Allen Club.

2 P. M.—Scientific program, Hotel Vermont, Roof Garden.

4 P. M.—Steamer Ticonderoga—Boat party to points of historic interest and rare scenic beauty on Lake Champlain.

7 P. M.—Annual dinner on board steamer Ticonderoga.

SATURDAY.

9 A. M.—Reading of papers—Hotel Vermont.

12:30 P. M.—Lunch, etc., at Hotel Vermont.

2 P. M.—Completing the scientific program.

The invitation for the 1922 meeting to be held at Burlington has been most cordially extended by the Vermont members.

No part of New England is more picturesque and more memorable in American history. No section of New England is more worthy of a largely attended meeting. So plan to make September 21 and 22 a part of your vacation.

Members are invited to prepare papers for this meeting. The title of each paper should be in the hands of the secretary on or before June 1.

P. E. TRUESDALE, *Secretary.*

CONGRES DES DERMATOLOGISTES ET
SYPHILIGRAPHES.

A Congress of Dermatologists and Syphilologists, conducted in French, will take place in Paris on June 6th, 7th, and 8th, 1922, under the patronage of the Société Française de Dermatol. & Syphiligraphes.

Those eligible to regular membership in the Congress are: (a) Members of National Societies of Derm. & Syph.; (b) Doctors interested in Derm. & Syph.

Subscription to the Congress will be sixty francs.

The meeting will be held at the St. Louis Hospital at 9 A.M. and 2 P.M. At the morning meetings patients will be shown and special papers will be read. The afternoon sessions will be given to the discussion of the following papers:

1. Epidermomycoses (excluding ringworm of the scalp), M. le Dr. Petges (Bordeaux).

2. Subacute Inguinal Lymphogranuloma of Venereal Origin, M. le Prof. J. Nicolas et M. le Dr. Favre (Lyons).

3. Colloïdales reactions in venous syphilis. Reactions to Colloïdal Gold, to Gum Mastix, to Colloïdal Benzoin, M. le Dr. Guy Laroche.

For the Committee,

HUDELO.

Communications and subscriptions to the Congress should be sent before May 15th, 1922, to M. le Dr. Hudelo, 8 rue d'Alger, Paris. Titles of papers, accompanied by a short résumé, should be sent to M. le Dr. Hudelo before May 1st.

The Boston Medical and Surgical Journal

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DECREASING DIABETIC MORTALITY: INCREASING INCIDENCE OF GLYCOSURIA.

By ELLIOTT P. JOSLIN, M.D., BOSTON.

DEATHS from diabetes per 100,000 in the registration area of the United States reached the peak in 1915 when they were 17.5 per 100,000. In the five successive years they have decreased, respectively, 17.1, 17.0, 15.9, 14.9, and 16.1. This has been coincident, by the way, with an increase in the per cent. of population included in the registration area, which has risen from 70.2 per cent. in 1916 to 82.3 per cent. in 1920. Up to 1915, the diabetic death rate per hundred thousand had consistently risen since the first available data in 1880, at which time it was recorded as 2.8 per 100,000. At no time was there a retrogression exceeding over 0.2 per cent. The Federal figures are confirmed by the diabetic death rate in Boston, namely, 26.1, which reached in the same year, 1915, a corresponding peak. Since this period it, too, has fallen, and as follows: 25.2, 19.1, 17.0, 22.9, 23.3, and 19.5. The lesser regularity of the decline is presumably due to the smaller mass of the material. In 1919, the number of diabetic deaths was 171, and in 1920 was 175, but now again comes the welcome news, published in the Monthly Bulletins

of the Health Department of the City of Boston, that for 1921 the deaths from diabetes were 148, in contrast to 175 for 1920.

These decreasing diabetic mortality rates are all the more encouraging because they might have been expected to rise as a result of a more liberal food supply following under-nutrition during the period of the war. It is well known that diabetes decreased with the rigid dietetic restrictions in Germany during the later years of the war, but whether abundant nutrition in that country will restore the former incidence of the disease will be awaited with great interest. The effects of undernutrition and overnutrition will stand out, then, in clearer relief. It will take some years, however, to settle this question, because diabetic cases now live so many years that, save for deaths from diabetic accidents, an immediate increase in diabetic mortality is hardly to be expected.

The decrease in diabetic mortality is by no means wholly attributable to a lessened frequency of the disease. It reflects better treatment. Between the years 1898 and 1913, the average duration of life of 940 fatal cases of diabetes in Boston for which data were reported was 3.3 years. In 1915, the duration of 116 fatal cases was 4.3 years, and for 1920 the average duration of 117 fatal cases was 5.3 years. The average Boston diabetic lives more than half again as long with his diabetes

today as he did in the period preceding 1914. The decreasing percentage of diabetic deaths in hospitals has already been widely recognized, but the skeptics said it was due largely to other causes than improved therapeutic methods. Now they must not only explain why 28 out of every 100 diabetic cases admitted to the Massachusetts General Hospital before 1914 died in its wards, in contrast to the two fatalities in 98 admissions in 1920, but also why the average diabetic in Boston before 1914 lived 3.3 years and in 1920 lived 5.3 years.

As an offset to this pardonable feeling of elation and civic pride, it is, perhaps, fortunate that the Metropolitan Life Insurance Company, in its *Statistical Bulletin* for November, calls attention to the reports of one of their laboratories which show that in the year 1919, for 1,000 urines examined, six showed sugar, but in 1921 the ratio was nearly double, or 11 per 1,000. (*Statistical Bulletin*, Metropolitan Life Insurance Co., November, 1921, 2, p. 2.) The report further indicates that these increases in the frequency of the discovery of sugar were confined to small percentages of sugar. Fortunately no increase was observed in percentages of sugar above 0.75 per cent. Concern is therefore manifested, not so much with the number of diabetics discovered as with the possibility that all these persons with mild glycosuria may be prediabetic cases who, if not watched, will develop frank diabetes in the near future.

A cause suggested in the *Bulletin* for this increase in the frequency of sugar reactions is the greater consumption of sugar, owing to its cheapness, its substitution for the use of alcohol, or even to the wider use of malt beverages. There are objections to such reasoning. It is true that there has been a steady growth in successive decades in the consumption of sugar in the United States. Thus for the years 1900-1910 the yearly average pounds per capita was 65 pounds, and for the years 1910-1917 the yearly average was 73 pounds. If one, however, examines the data for the individual years 1912-1921 (Table 1), it will be observed that the variation in sugar consumption per individual, in this country, has not been very great. It reached its maximum of 85 pounds in 1913 and its minimum in 1918, when it fell to 73 pounds. In the year 1919, it rose to 85 pounds (85.43); in 1920, to 87 pounds (86.56); but in 1921, when the great increase in sugar reactions was noted by the Life Insurance Company, it had fallen to 84 pounds (84.47), or almost precisely the same quantity as in 1919, when the Insurance Company found only about half as many urinary sugar reactions.

TABLE 1.
TOTAL CONSUMPTION OF ALL SUGAR IN THE
UNITED STATES.

YEAR	PER CAPITA
1912	81.3 lbs.
1913	85.4
1914	84.29
1915	83.83
1916	79.34
1917	78.58
1918	73.36
1919	85.43
1920	86.56
1921	84.47

(Weekly Statistical Sugar Trade Journal, 1922, 2, p. 15.)

It is unnecessary to comment upon the possibility of an increase in malt as accountable for these increased sugar reactions, because such increase does not appear probable. In answer to the question (usually partisan) whether Prohibition is in any way responsible for the increased frequency of glycosuria at insurance examination, the writer's belief is: (1) the actual frequency of diabetes has decreased coincidentally with the rarer appearance of fat people on the street, and (2) the apparently contradictory increase in glycosuria must be otherwise explained than by sugar or alcohol.

For comparison with the increased number of sugar reactions noted by the Metropolitan Life Insurance Company the following data are presented. Three hundred successive case histories of supposedly non-diabetic patients coming to my office were searched and it was found as a result of routine urinary examinations that reactions for sugar in the urine were present in 50 instances, or at the rate of 165 per 1,000. The sugar was quantifiable in 25 of the cases. Subsequent study showed that but one of the fifty individuals was a frank diabetic. Comparing these data with those furnished by the Metropolitan Life Insurance Company, it will be noted that whereas in 1921, out of 1,000 urines which were examined, there were 11 reactions for sugar, the rate at the office of a private practitioner was 165, or 15 times as many. It might be claimed by those unacquainted with the facts that my patients came to me knowing my interest in diabetes. This, however, is not true, as not one of the number suspected the presence of diabetes or of sugar in his, or her, urine. In explanation of the divergence of the Insurance Company's results and my own, it is suggested that the individuals examined by the Insurance Company were supposedly well, while the individuals examined in my office were ill.

The number of individuals carrying insurance and applying for insurance is rapidly increasing and much more so in the recent five years than formerly. This is clear from the accompanying table (Table 2).

TABLE 2.
LIFE INSURANCE POLICIES IN FORCE IN THE
UNITED STATES.

YEAR	NO. OF POLICIES	POPULATION	PER CENT.*
1880	608,681	50,155,783	1
1890	1,276,167	62,947,714	2
1900	3,071,253	75,994,575	4
1910	6,040,617	91,972,266	7
1915	8,284,281	100,399,318 est.	8
1920	13,199,605	105,710,620	12

When the number of policies in force rose from 8 per cent. in 1915 to 12 per cent. in 1920, and the number of policies issued from 1.1 per cent. in 1915 to 2.3 per cent. in 1920,† the insurance clientele may have been no longer entirely confined to the well, but may have been recruited in part from individuals on the border line of disease. These latter individuals, as shown by my data, are 15 times as liable to have traces of sugar in the urine as the healthy. The records of the draft support this view. It will be recalled that the percentage of men examined for the draft, who had a military defect which was considered of sufficient importance to note at the time of the physical examination, was 46.8 per cent. It is only fair to state that opposed to this explanation are the statistics of insurance companies, which indicate that their mortality from recent insurance is better every year, that their rejection ratio is constantly decreasing, and that their total mortality experience is improving.

DIVIDED MEALS FOR SEVERE DIABETICS.

BY H. GRAY, M.D., BOSTON.

[From the New England Deaconess Hospital.]

THEORY OF MULTIPLE MEALS.

DESPITE the paucity of data, certain reasons for anticipating value from the division of a diabetic's day's quota of food into small quantities frequently given, may be found in scattering observations in the literature on inanition glycosuria (and more recently inanition hyper-glycemia), upon the lessened glycosuria and hyper-glycemia following the repeated intake of glucose, and on multiple meals of glucose or starch.

Inanition Glycosuria. The increased tendency to glycosuria as a consequence of fasting, has been mentioned by Lehmann 1873, Claude Bernard 1877, Hofmeister 1890, who named the phenomenon "marantic glycosuria" or "hunger diabetes"; Naunyn 1898, Hoppe-Seyler 1900, who added the terms "vagabond diabetes" or "tramp glycosuria"; Bang 1913, Allen 1913 and 1920, Mogwitz 1914, Allen, Wishart and Smith 1919, and finally MacLean

and DeWesselow 1921 (inanition hyper-glycemia).

The importance of the phenomenon was urged by Naunyn, but little by any other writer, and indeed, Allen, Wishart and Smith regarded it as "trivial."

The explanation of the phenomenon has been rather vague, but still uniform: some state of temporary unpreparedness for the carbohydrate flood.

Lessened Glycosuric and Glycemic Reactions to Glucose or Other Food when Taken at Short Intervals. The fact that a second dose of glucose, given when the glycemic reaction following the first dose has declined or is still declining, produces a smaller rise than the first dose, has been noticed by Bang, 1913, in rabbits, and in man by Menke 1914, Hamman 1919, MacLean and DeWesselow 1921, and Staub 1921 (Bahnung or canalization).

Much the same law, but in a more general and clinically more important form, is that the blood sugar peak is less following carbohydrate or a mixed meal containing carbohydrate given a short interval, say two and one-half to three hours after the preceding meal, than when the period between meals is the usual four or five hours. This was noted in man by Naunyn 1898 (*re* urine sugar only at that time), Menke 1914 (with four isocaloric meals), Sakaguchi, Kasai and Kin 1915, Sakaguchi 1918, and lastly by Benedict, Osterberg and Neuwirth 1918.

The explanation offered by most of these writers, Naunyn, Bang, Sakaguchi, Benedict, Hamman, MacLean and DeWesselow, Staub, apparently independently, is practically identical with that cited above for inanition glycosuria, namely, that the fasting pancreas or liver is not ready for glycogen formation, but that once this has been started by the stimulus of the absorbed sugar, the organism becomes able to transform the sugar to glycogen and to retain it. Indeed, Sakaguchi, Kasai and Kin reasoned that, once under way, glycogen formation, like various other organic processes, functions more abundantly than seems necessary to the needs of the moment, so that at certain hours after the ingestion of carbohydrate, glycogen formation far exceeds sugar intake, and the blood sugar accordingly sinks to a subnormal value (secondary hypoglycemia).

This usual explanation throws light, according to Naunyn and to Hamman, on the better utilization of slowly absorbable carbohydrate and the almost unlimited power of the body to metabolize starch.

The preceding experimental results show besides, according to Staub, how important it is to follow Von Noorden's prescription, especially in an early case of diabetes. First, to determine the limit of tolerance and to begin dietetic treatment from this limit of tolerance and not from a carbohydrate free diet. For

*Per cent. of population to policies in force.

†Unfortunately, the statistics for the year 1921 are not at hand.

if even a little carbohydrate tolerance exists, then the preparedness for carbohydrate assimilation is preserved, and if the treatment is introduced needlessly with a carbohydrate free diet, then that preparedness is lost and the tolerance which has been decreased by the metabolic disturbance is still further decreased by the physiological lack of preparedness. With this declaration, the present writer, like other pupils of Joslin, is in the heartiest accord.

Another explanatory factor has been brought forward by Benedict, Osterberg, and Neuwirth: "The very high sugar elimination reached as a result of the addition of 20 grams of dextrose to a meal . . . appears to lend considerable support to the view held by several students of diabetes, that the *internal* function of the pancreas may suffer while the gland is active during digestion. Unless some such view is taken, it is difficult to understand why, as in our experiments, dextrose added to a meal is more poorly tolerated than when taken on an empty stomach. . . . Thus our results seem to show unmistakably that dextrose taken with a meal may constitute a strain on the carbohydrate metabolism."

Interference with the internal secretion (hormon) of the pancreas by simultaneous demands on the external secretions, as mentioned in the foregoing paragraph, is worth a few words, because it throws light on the desirable distribution of the food between the regular and activating meals. In the latter, we have been putting most of the carbohydrate, leaving the larger meals mainly protein and fat. The obvious alternative would be to give all the meals as mixed meals. Theoretically, there is something to be said for each alternative. Practically, one finds few opinions and fewer facts. In the course of reports on oat and other starch-cures, the view has been ventilated that such beneficial results as have been obtained have been due to the fact that the food has been administered as (at least relatively) pure carbohydrate, and has, therefore, been free of any protein effect. This view has been urged by a marked minority, but none the less, its mechanism seems worth wider consideration than has yet been reported. Therefore, without reviewing here all the literature examined in this connection, we may briefly point out some of the speculations as to the mechanism of this supposed protein effect. All this, at the outset, after making allowance for the carbohydrate moiety of the protein molecule. Protein may (1) irritate or stimulate metabolism, thus making an excessive demand on damaged functions (*e.g.*, Von Noorden 1902 and 1903, Blum 1911, Klemperer 1911, Minkowski 1911, Magnus-Levy 1911), or (2) cause excessive mobilization of sugar (*e.g.*, Kolisch 1899), or (3) cause a demand on the external pancreatic function (*e.g.*, Cohn-

heim and Klee 1912), which may be equivalent to a drain on the connected sympathetic nerves, with resulting lessened efficiency of those or related nerves in regard to the internal function of the pancreas.

The details of the fascinating work of Benedict and his colleagues, and of Sakaguchi *et al.*, deserve lengthier critical analysis, and this the writer has made, but omits here for the sake of brevity.

The possibility of applying these experimental observations and theory to practical treatment was suggested by Benedict, Osterberg and Neuwirth in the following words: "The point might be of therapeutic interest and is very easy of application. Five, ten, or twenty grams of dextrose would probably be the right amount for preliminary trial, given two hours before the meal. An exact determination of the urinary sugar for two hours following the same meal, with and without previous ingestion of dextrose, would be needed to determine the effect."

Specific opposition of these views, however, exists, to wit, on the part of such experienced students as Allen, Stillman and Fitz, who wrote, in 1919, that "little is to be hoped from unusual fractionation."

Summing up this section, it seems fair to say that the observations and assumptions quoted indicate the need both of further experimental evidence and some bedside experience. To make a beginning in the direction of the last named, is the purpose of this paper. The plan of attack, as defined in the quotation from Benedict, Osterberg and Neuwirth, has been tried in this clinic, though we have used 5 or 10 per cent. fruits (grapefruit or orange), or 5 per cent. vegetables, since we are not prepared to agree with those who accept Klemperer's or any other observations yet published, as adequate proof that pure glucose "can be given to diabetics without harm."

Administration of the diabetic diet in small quantities and at frequent intervals. Literally speaking, this has, in fact, been reported by a few. Naunyn, in 1898 and 1906, gave five grams of dextrose 20 times in twenty-four hours in addition to the patients' other food. Von Noorden, in 1903, in practising his oat cure, gave oatmeal soup every two hours. Minkowski, in 1911, gave 50 grams of oat flakes five times a day. Blum, in 1911, divided the food for his diabetics into five or six meals a day in connection with an oat or wheat cure, totaling 250 grams flour in twenty-four hours. Klemperer, in 1911, gave 15 grams of dextrose every hour for seven to ten doses. Knerr, in 1913 and 1915, regularly began treatment by allowing nothing whatever, except a dram of raw cornstarch, stirred in a glass of warm water, every two hours until aglycosuria, in obedience to "just two basic principles which

I would announce as essential in the treatment of all diabetics, acute or chronic . . . carbohydrates continuously and . . . in such form as to be most slowly absorbed . . . *i.e.*, raw . . . green vegetables of all kinds . . . flour . . . cornstarch . . . " The conception of carbohydrates continuously has also been elaborated by Woodyatt, in 1916, and recently by Shaffer. The primary value of this conception seems to be more in combating acidosis than in spurring on metabolism. Troje, in 1918, gave his diabetics five meals at two-hour intervals.

The object of these divided doses, however, in the few cases where stated, for example, by Klemperer, was "to avoid flooding the organism with sugar." This was not, it must be noted, at all the same motive as ours, which is not merely to avoid harm, but to discover whether some positive good may ensue from placing the load on assimilation at particular intervals and by means of what we have come to call "activating meals," as suggested by E. P. Joslin, in whose clinic and under whose guidance have been carried on both this study and the more exact metabolic investigation of a remarkable case which is being reported by Murayama.

In none of the above reports has the experiment been made of giving the same amount of food divided in the usual three meals over a control period of a few days, followed by a test period with the same food divided into six meals. Furthermore, little evidence is traceable as to the blood sugar after meals coming four hours or more after the preceding meal, compared with the blood sugar after a meal coming only two hours after the preceding meal. Both these procedures will be shown below in data from this clinic.

Another possible advantage of fractional feeding has been suggested by A. A. Hornor. It may facilitate detection of slips in diet. For when a patient picks up morsels at odd moments, he is apt to do so around the time of one of the smaller feedings, and therefore may betray himself by glycosuria after that lighter load, rather than after a regular meal, when, if at all, it would naturally occur during adherence to diet.

USE OF SPLIT MEALS IN PRACTICE.

Indication for Multiple Meals. Diabetics studied in this connection have not been mild cases, because in such patients the trouble, both for them and for the nurses, is unnecessary. But for moderately severe patients (*i.e.*, those who, on one gram of protein per kilogram, or, if a child, two grams per kilogram, could not remain sugar free with 50 grams of carbohydrate) and for severe patients (*i.e.*, those who with protein as above stated could not tolerate more than 10 grams of carbohydrate), the method seemed worth trying.

After the patient's diet had been raised according to usual methods, as high as was possible, and had remained essentially unchanged for at least three days, and generally more than a week, while the blood sugar remained stationary, the diet was changed only by splitting off part of the allowance of carbohydrate from the regular meals and giving it as extra meals. The total carbohydrate, protein, and fat was *kept the same*. At the outset, the type-schedule was planned with six meals, though occasionally, to pacify the patient, some minor modification was allowed, such as a seventh meal at bedtime.

Split Meal Schedule.

1. Intervals between Meals: Two and a half (2½) hours, never less, except that the first activating meal (the keystone of this technic) may be taken any time between 1 and 2½ hours before the regular breakfast. For an example, see Table 1.

2. Calorie Value of Meals: Of the extras, the first must be the smallest meal of the day. Of the main meals, the regular breakfast is to be the smallest, the smaller the better.

3. Composition of Activating Meals: Practically pure carbohydrate, generally most conveniently administered, as orange, grapefruit, or 5 per cent. vegetables.

4. Calculation: Since this is complicated, it is best shown by an example: Table 1. First, we agree on the hours for eating. Next, we plan the division of the carbohydrate and total cal-

TABLE 1.
CALCULATION OF A SPLIT MEAL SCHEDULE.

Meal	Hour	Food						
		Plan		Given As		Detail		
		CH	Cal.			C	P	F
1st Extra	5:30 to 7:00	5 or less		Orange	50	5	0	0
Breakfast	8:00	6	150-200	5% vegetables	150	5	3	0
				20% cream	30	1	1	6
				Egg	1	0	6	6
2nd Extra	10:30	5		Grapefruit	100	5	0	0
				Egg	1	0	6	6
Lunch	1:00	9	300	5% vegetables	210	7	4	0
				Bacon	30	0	5	15
				Cream	60	2	2	12
3rd Extra	3:30	5		Orange	50	5	0	0
Supper	6:00	10	300	5% vegetables	240	8	4	0
				Bacon	15	0	3	8
				Meat	30	0	8	5
				Cream	60	2	2	12
Totals		40				40	44	70

ories, say, for a patient on a diet of carbohydrate 40, protein 40, fat 70, calories 950. Then we distribute the patient's present items of diet, as far as possible, to fit the plan, making changes when necessary. Finally, we figure the details to make sure the totals approximate those with which we started planning. If the patient's carbohydrate tolerance were half as great, we should at present omit the vegetables from the meals, thus lowering the carbohydrate intake to 20 grams, given mostly apart from the protein-fat meals.

RESULTS.

CASE 1. Patient No. 1254 came under observation at the age of 11 years, 11 months, when the duration of his diabetes had been only 11 days, showing 0.6 per cent. urinary sugar. After three days of treatment, on the last of which his diet was carbohydrate 20 grams, protein 38 grams, fat 0, calories 232, he became sugar free. On the morning on which ended his first sugar-free 24-hour amount, the blood sugar was taken (fasting, as has been our practice, unless otherwise specifically stated), and was 0.15 per cent. After about a month's further treatment, he was discharged on a diet of C. 92, P. 71, F. 86, Cal. 1426, on which he had been for five days with a fasting blood sugar of 0.07. (See Table 2.)

His second admission occurred when the duration was two years and two months, with glycosuria of 0.4 per cent., and with a blood sugar of 0.24 per cent., and again after about a month's treatment, he was discharged on a diet of C. 86, P. 78, F. 65, Cal. 1241, on which he had been for six days, with a fasting blood sugar of 0.12 per cent.; in other words, on a slightly lower diet and with a slightly higher blood sugar than at the end of his first admission.

His third admission was at the duration of two years and five months, sugar free and with a blood sugar of 0.15 per cent., and this time, after about a month, he was discharged on a diet of C. 66, P. 58, F. 62, Cal. 1054, on which he had been for four days, with a blood sugar of 0.13 per cent. Again it is seen that his tolerance had fallen off slightly since the last admission.

His fourth admission was at the duration of two years and nine months, with 3.2 per cent. of sugar in the urine, and with a blood sugar of 0.22 per cent., and a week later he was discharged on a diet of C. 15, P. 68, F. 36, Cal. 656, with a blood sugar of 0.13 per cent. The decrease in tolerance around this time was, in part, due to neglect of urine examination, and in part to neglect of diet, owing to a certain religion.

His fifth admission was at the duration of four years and nine months, with a blood sugar of 0.38 per cent., and 6 per

TABLE 2.
PATIENT NO. 1254, BORN APRIL 11, 1905,
ONSET MARCH 1, 1917.

No. of admission	Age y. m.	Duration y. m. d.	Date B. S.	Diet				Days on diet	Ur. sg. 24h.	B. S. (%)	W net lbs. oz.	
				C	P	F	Cal.					
1	11	11	14	1917								
				Mar. 15	20	38	0	232	1	0	.15 77 1	
				Mar. 28	64	65	86	1290	2	0	.10 76 3	
				Apr. 9	91	70	82	1382	4	0	.10 76 9	
				Apr. 17	92	71	86	1426	5	0	.07 77	
2	14	0 2 2		1919								
				Apr. 21							.24	
				Apr. 23	51	48	49	817	1	0	.24 85	
				Apr. 29	65	73	21	741	3	0	.13 83	
				May 6	68	67	37	873	2	0	.08 81	
				May 20	85	77	59	1179	6	0	.10 89	4
				May 24	86	78	65	1241	3	0	.11 90	
				May 26	86	78	65	1241	6	0	.12 88	4
3	14	4 2 5		Aug. 5	7						.15	
				Aug. 8	75	45	0	480	2	0	.22 78	
				Aug. 13	36	59	6	434	3	0	.13 79	
				Aug. 25	61	58	57	989	4	0	.12 77	
				Aug. 30	66	58	62	1054	4	0	.13 76	
4	14	8 2 9		Dec. 8					1 1/4	.22		
				Dec. 12	0	18	0	72	1	0	.13 83	
				Dec. 15	15	68	36	656	1	0	.13 82	
5	16	8 4 9		1921								
				Aug. 5	64	45	12	544	1 88	.38 73 12		
				Aug. 12	0	6	6	78	1	0	.18 76 14	
				Aug. 30	50	40	62	918	3	0	.21 74 8	B.S. Av
				Sept. 2	50	40	62	918	6	0	.22 73 12	0.21
				Sept. 6	40	43	70	962	2	0	.14 76 8	
				Sept. 9	40	43	70	962	5	0	.16 72 12	
				Sept. 13	40	43	70	962	9	0	.16 74	B.S. Av 0.15
				Sept. 16	40	43	70	962	12	0	.14 73 4	
				Sept. 20	40	43	70	962	16	0	.15 72 12	B.S. Av 0.13
Sept. 23	40	43	70	962	19	0	.11					

cent., or 88 grams, of sugar per 24 hours, in the urine. A week later, when he became sugar free, his blood sugar was 0.18 per cent. This time his tolerance had fallen off so much that it seemed worth while to attempt any method that gave even the slightest hope of improvement, and so a six-meal schedule was instituted. After three days of this, his blood sugar was 0.21 per cent., and three days later, 0.22 per cent., or for the 6-day period, 0.21 per cent. Then the carbohydrate was decreased by 10 grams and the fat increased by about 10 grams, giving a slightly greater number of calories, with the result that the next three blood sugars, covering this 9-day period, averaged 0.15 per cent. Then precisely the same meals were given, but with insistence on the 2½-hour interval specified in the schedule quoted; the next three blood sugars, over a period of 19 days, averaged 0.13 per cent., and, furthermore, the final blood sugar was only 0.11 per cent. The patient was therefore discharged on the same diet: C. 40, P. 43, F. 70, Cal. 962.

These observations, like most clinical notes, are by no means conclusive, but indicate sufficient improvement, under the divided régime, to be distinctly worth reporting. A considerable number of similar observations have been made with other patients, with results which, though confirmatory, are hardly worth further space at present.

CASE 2. Patient No. 1895 was admitted at the age of 14 years, 11 months, when the duration of his disease had been one month. His blood sugar was 0.09 per cent., and he was discharged on a diet of C. 75, P. 72, F. 54, Cal. 1074, with a blood sugar of 0.11 per cent. (See Table 3.)

His next admission was at the duration of 11 months, with a blood sugar of 0.21 per cent., and he was discharged on a diet of C. 63, P. 80, F. 75, Cal. 1247, with a blood sugar of 0.13 per cent.

His third admission, at the duration of 15 months, showed that he had lost much more ground, apparently from neglect of advice, than during the interval between his first and second visits; instead of being sugar free, as on both those admissions his urine contained 6.6 per cent., or 60g., and his blood sugar was 0.27 per cent. On this occasion, the six-meal schedule was begun, without waiting to work up the patient's diet first, but making increases while he was using divided meals. After the diet had been raised to C. 40, P. 45, F. 78, Cal. 1042, his blood sugar was 0.23 per cent. This looked much worse than his condition on June 13, five months before, but the diet was continued without change, and the blood sugar taken three times, at three- to six-day intervals, averaged 0.14 per cent. From this it was felt that his condition was better than it would have been with a three-meal schedule.

TABLE 3.
PATIENT NO. 1895, BORN SEPTEMBER 10, 1905,
ONSET JULY, 1920.

No. of times admitted	Age at admission	Duration	Date of B. S.	Diet				Days on Diet	Urine Sugar Gm. per 100	Fasting B. S. per cent.	W net
				C	P	F	Cal.				
1	14y. 11m.	1m.	1920 Aug. 17						0	.09	109 6
			Aug. 24	75	72	54	1074	1	0	.11	108
2	15y. 9m.	11m.	1921 June 2						0	.21	116 8
			June 7	33	67	64	976	1	0	.13	116 12
			June 13	63	80	75	1247	4	0	.13	113 8
3	16y. 1m.	15m.	*Oct. 25	1	7	12	140	1	0	.27	104
			Nov. 2	20	41	63	811	2	0	.18	101 4
			Nov. 9	40	45	78	1042	3	0	.23	99 8
			Nov. 15	40	45	78	1042	9	0	.16	100 12
			Nov. 22	40	45	78	1042	16	0	.13	103 4
			Nov. 28	40	45	78	1042	20	0	.14	103 4

*Oct. 20 split meals instituted.

In order to prove this conclusion out more clearly, it was decided to lump his meals again into the ordinary allowance of three a day, but unfortunately the patient left hospital against advice.

Besides studying the effect of extra meals by blood sugars following a period of three days, we have studied the blood sugars after a given meal which has, in one case, been preceded by an activating meal, and in another case, without the extra meal. This was done with patient No. 1895, as shown in Table 4.

Table 4 shows that when the activating or true breakfast was omitted, the blood sugar, after the second or regular breakfast, was not higher, thus disappointing us. The urine, however, showed more sugar than when the first breakfast was given. Inasmuch as this larger excretion of sugar was preceded by less actual carbohydrate and calories,—i.e., only one breakfast,—the finding is paradoxical, except in the light of the theory with which this paper is concerned, and in the light of this theory is easily comprehensible. In order to answer the objection that the findings just mentioned differ so slightly as to be within the range of accident, it seemed worth while to repeat the experiment, and this was done under the same conditions, except for the deliberate reversal of

TABLE 4.
EFFECT OF USE OR OMISSION OF AN ACTIVATING MEAL BEFORE BREAKFAST.

CASE II.
Prior Diet: C 40 — P 45 — F 78 — Cal. 1042 for 3 days.

Date	Urine Sugar		Blood Sugar
Nov. 9	0	0.23	Fasting
	0.3% = 0.7 g.	0.27	½ hour after regular second breakfast
	0	0.25	1 hour p. c.
Nov. 10	0.4% = 0.4 g.	0.26	½ hour after regular breakfast, first extra meal having been omitted
	0.8% = 0.3 g.	0.25	1 hour p. c.

Conclusion is that omission of first extra meal caused:
a No difference in the blood sugar, therefore no proof.
b Greater glycosuria, despite less CH and calory intake, therefore proof.

REPETITION WITH REVERSED DAYS

Nov. 15 as on Nov. 10	0	0.22	½ hour after regular breakfast, without preceding activating meal
	0	0.21	1 hour p. c.
Nov. 16 as on Nov. 9	0	0.19	½ hour after second breakfast
	0	0.20	1 hour p. c.

Conclusion is that omission of first or activating load produced:
a Higher blood sugar, i. e. proof.
b No glycosuria, i. e. no evidence.

the days; that is, on the first experimental day the breakfast was omitted instead of on the second. In this case the urine was no help to us, being sugar free, but the blood sugar was higher (both at the half-hour and one-hour period after the meal) on the day when the first breakfast was omitted. This finding seems to us to confirm the first pair of days and to support the hypothesis given.

SUMMARY.

The idea presented itself that a diabetic patient's ability to metabolize food might be stimulated by small meals, frequently given, in much the same way that immunity is produced.

The literature was rather carefully searched for relevant statements, and those found are briefly reviewed in the present paper, under the headings of Starvation Diabetes, The Lessened Glycosuric Reaction to Glucose on Repetition at Short Intervals, and The Clinical Use of Frequent Small Meals.

The theory of divided meals appears to be activation of the liver or pancreas by a small, preliminary meal of carbohydrate, given one or two hours before each main meal; the organism being then in action at the time of that regular meal responds to the food load more vigorously than with the every-day three-meal schedule.

The suggestion that the scattering experimental observations and views be verified by studies in man, is due to Benedict, Osterberg and Neuwirth.

Such confirmatory clinical data seem to be lacking, and are therefore here reported on the two most striking of the severe cases in which the method has been used under Dr. Joslin's supervision.

The results indicate that the method does help to lower the blood sugar.

The method is, therefore, advocated as having practical value.

THE ADVANTAGE OF MULTIPLE MEALS IN THE TREATMENT OF SEVERE DIABETES.

BY T. MURAYAMA, M.D., BOSTON.

[From the New England Deaconess Hospital.]

SINCE Hofmeister's¹ description of "Starvation Diabetes," it has long been known that the fasting organism is more susceptible to alimentary glycosuria than the well-fed one. The recent advances in blood chemistry, especially the discovery of simple and accurate methods for determining sugar in the blood, have contributed not a little to the modern knowledge of metabolism. Staub's² experiment demonstrated the decreased power of assimilating carbohydrate under conditions which cause reduction of the glycogen deposits in the body,

for example, after exercise or protein-fat diet. On the other hand, Bang³ found in rabbits that the second administration of glucose during the decline of the hyperglycemia produced by the first, was followed by a much less marked reaction. This has been confirmed by Hamman and Hirschman⁴ on normal and diabetic men. Staub⁵ also found that the repeated administration of the same amount of glucose which caused a marked increase of the blood sugar at first is followed by a slighter increase and at last by no hyperglycemia.

It is also a well-known fact that in the vast majority of cases of diabetes the elimination of sugar after breakfast is the largest of the day, if each meal has the same composition. Sakaguchi⁶ worked on this problem and demonstrated that the administration of small amounts of carbohydrate or meat two hours before breakfast, prevented or diminished the glycosuria which appeared after breakfast.

From the above data, we know that the intervals of time between meals is one of the most important factors which influences the metabolism of carbohydrate in normal men as well as in diabetics. The mechanism of this fact may be explained by supposing that it is partly due to inequalities in the digestive function, such as the motility of the stomach and the velocity of absorption of the sugar from the intestine, and partly due to the stimulation of the metabolic functions by the sugar first absorbed, so that the sugar subsequently absorbed is better assimilated. With these conceptions in mind, we tried to arrange the diet so that the diabetic patient could take carbohydrate with the least increase in the blood sugar.

SIX-MEAL SCHEDULE.

1. *Intervals between Meals.* Two and a half hours, except that the first activating meal may be taken any time between one and two and a half hours before the regular breakfast. For example: first extra, 5.30-7; breakfast, 8; second extra, 10.30; lunch, 1; third extra, 3.30; supper, 6.

2. *Calorie Value of Meal.* The first extra meal is to be the smallest meal of the day. Breakfast is to be the smallest of the three main meals, and the smaller it is, the better.

3. *Composition of Meal.* The extra meals to be mainly carbohydrate, generally in the form of fruit, because this is generally the most convenient.

REPORT OF A CASE.

Case No. 1542, woman, age 41 years, American, nurse. First visit, June 7, 1919.

Family History.—Father (65), mother (63), one brother and two sisters are all alive and well; one sister died of trauma. No hereditary

diseases have been found except obesity in her mother and two sisters.

Past History.—Measles, whooping-cough, scarlet fever, and chicken-pox in childhood. Frequent sore throat and headache as young girl and till age 34.

Present History.—Beginning July 1, 1917, the patient had pruritus, polyuria, polyphagia, and loss of strength. Sugar was first discovered on August 1, 1917. Starch and sugar were omitted at once from the diet for one year; pruritis disappeared, but the urine was not sugar free. In the summer of 1918 she was admitted to a large general hospital, where she became sugar free in one week on a greatly restricted diet. An appendectomy was then performed under gas and oxygen. Glycosuria thereupon returned, reaching 39 grams in 24 hours. One day's fasting was followed by aglycosuria and the diet was gradually increased to carbohydrate 70 grams, protein 64 grams, fat 113 grams. Sugar appeared about five times in the succeeding three months on about 1200 calories and carbohydrate 40 grams. Upon this diet she did well and was able to work for three more months. In February, 1919, 1.0 per cent. of sugar was found, and the same amount noted in March and April, and 3.5 per cent. in May. On readmission to the same hospital, upon restricted diet, sugar was reduced to 0.3 per cent. in two days. Later, she consulted a local physician, who advised a very liberal diet and 50 grams of sodium bicarbonate daily. With this plan of treatment the excretion of sugar rose to between 30 and 60 grams. Having lost about 55 pounds since January, 1917, or 35 per cent. of her original body-weight, she entered this clinic in June, 1919.

Physical Examination disclosed a patient five feet, five inches in height, weighing 103 pounds, which is 27 per cent. below standard weight for her sex and age. Although thin, she was alert and agile. No pathological signs were observed, except ptosis of liver and kidneys. Blood pressure 104 systolic and 80 diastolic.

The urine was of specific gravity 1.024, acid in reaction, negative for albumin, gave a slight reaction for diacetic acid, contained 3.0 per cent. of sugar; and on microscopic examination it was free from casts, blood, and pus.

First Period at New England Deaconess Hospital (June 7, 1919, to June 26, 1919).

Preceding admission to the hospital the diet contained about 200 grams of fat administered as bacon, olive oil, cream, butter, eggs, and cheese. Glycosuria and ketonuria were present. The blood sugar* was 0.185 per cent. on the morning following admission. The CO₂ in the alveolar air† was 32 in terms of mm. press-

ure Hg. On the third day of admission, the urine became free from sugar and diacetic acid upon a diet of carbohydrate 10 grams, protein 17 grams, fat 0, calories 108. The diet was then gradually increased up to the 26th of June without the appearance of glycosuria or ketonuria. On this day the body-weight was 101 pounds, and the patient was discharged taking carbohydrate 22 grams, protein 69 grams, fat 48 grams, calories 816. The blood sugar on June 23 was 0.135 per cent.

Subsequent History. Living upon the same diet prescribed at discharge, sugar occurred upon several occasions during the subsequent six months, and the blood sugar fluctuated between 0.130 and 0.278 per cent.

Second Period at New England Deaconess Hospital (December 9, 1919, to January 12, 1920).

During this period every effort was directed toward bringing the percentages of blood sugar down to normal. This attempt, however, was in vain. The blood sugar always remained abnormally high—between 0.141 and 0.226 per cent. No glycosuria and ketonuria appeared throughout this period. The patient was discharged with a diet of carbohydrate 4 grams, protein 82 grams, fat 56 grams, calories 848.

Subsequent History.—The patient followed the diets, but after May 10, 1920, the glycosuria became constant, even on a diet so reduced as to contain carbohydrate 0, protein 18 grams, fat 18 grams.

Third Period at New England Deaconess Hospital (from January 16 to 27, 1921).

The low protein, high fat diet of Newburgh and Marsh⁷ was tried. As is to be seen in Table 1, acetone and diacetic acid reactions persisted throughout this time. Glycosuria and blood sugar remained nearly constant.

Subsequent History.—The patient continued on the above diet after her discharge from the hospital, but on account of increasing acidosis was re-admitted to the hospital on March 15, 1921.

Fourth Period at New England Deaconess Hospital (March 15, 1921, to April 20, 1921).

Acidosis was now so severe that coma threatened. A +++ reaction for diacetic acid, an ammonia-nitrogen ratio of 5 to 1, blood plasma CO₂ is 24 in terms of mm. Hg,* and CO₂ in alveolar air 23 in terms of mm. Hg were observed. Gradually all signs of acidosis lessened, and on April 8, twenty-five days after admission, the diacetic acid reaction was negative and the CO₂ in the alveolar air was 33 mm. Hg. The carbohydrate tolerance and the blood sugar remained almost at the same level (See Table 2).

*The blood sugar determination by Folin's method.

†The CO₂ in the alveolar air by Fridericia's apparatus.

*The plasma CO₂ was determined by Van Slyke's apparatus.

TABLE 1.—Third Admission. Carbohydrate and Protein Low; Fat High.

Date	Weight Kg.	Carbo- hydrate	Diet in Grams	Calories	Urine (24 hours amounts)	Nitrogen G	Ammonia Nitrogen G	Sugar G	Blood (Fasting)	Plasma Alveolar CO ₂ Air CO ₂ mm. Hg.mm. Hg.	Remarks
Jan., 1921			Protein	Fat	Vol. cc.	Acetone	Diabetic Acid		Sugar %	Non-Protein Nitrogen	
16	37.8	—	—	—	1570*	—	+	—	—	—	
17	37.6	10	58	46	3060	++	sl. +	25	0.26	30.0	
18	37.6	10	59	48	2450	++	+	25			
19	38.1	12	23	92	3000	++	+	20	0.98		39
20	37.5	13	22	91	3240	++	+	24	1.27		37
21	38.0		do		3100	++	0	32	10.8*		40
22	37.4		do		3350	++	sl. +	31	10.8		40
23	38.1	13	23	91	2840	++	+	34	0.85		
24	38.0		do		3300	++	sl. +	14			36
25	38.1		do		3500	++	+	20	10.8		44
26	38.0		do		2850	++	sl. +	21	8.9	0.28	37
							+	20			
							+	20			

TABLE 2.—Fourth Admission. Coma Averted.

Date	Weight Kg.	Carbo- hydrate	Diet in Grams	Calories	Urine (24 hours amounts)	Ammonia Nitrogen	Sugar %	Blood (Fasting)	Plasma Alveolar CO ₂ Air CO ₂ mm. Hg.mm. Hg.	Remarks
Mar., 1922			Protein	Fat	Vol. cc.	Diabetic Acid	Nitrogen	Non-Protein Nitrogen	Sugar %	
15	36.6	—	—	—	1320*	++	7.0	34.2	1.22	
21	—	21	53	0	296	++	16.0	—	1.24	
28	40.7	21	81	30	678	++	17.5†	33.6	0.95	
April 4	37.7	20	71	42	742	+	13.9†	33.6	0.99	
11	36.6	18	57	31	579	0	12.6†	41.4	1.06	
18	36.8	8	33	19	335	0	13.3†	30.0	1.03	

*12 hours amount.
Generalized edema.
Generalized edema.

†These figures were obtained from aliquot specimen of urine for several days.

TABLE 3.—Details of Divided Meal Schedule.

Date	Diet in Grams Carbohyr. 9 Protein 25 Fat 54 Calories 622	First Extra 5.30 A.M. 20% Cream 15 cc	Breakfast 8.00 Egg 1 20% Cream 15 Lettuce 30 Thrice washed vegetable 150	Second Extra 10.30 20% Cream 15	Lunch 1.00 Bacon 20 20% Cream 45 5% Vegetable 60 Thrice Washed Vegetable 150	Third Extra 3.30 20% Cream 15	Supper 6.00 Egg 1 Bacon 10 20% Cream 30 5% Vegetable 60 Thrice Washed Vegetable 150	Fourth Extra 8.00
Nov. 1 to Nov. 6	Carbohyr. 9 Protein 25 Fat 54 Calories 622	Lettuce 30	Egg 1 20% Cream 30 Lettuce 10	Lettuce 45	Bacon 20 20% Cream 60 Lettuce 10	Lettuce 45	Egg 1 Bacon 10 Lettuce 10 20% Cream 45	
Nov. 19 to Nov. 24	Carbohyr. 8 Protein 22 Fat 51 Calories 579	Lettuce 25 40% Cream 10	Egg 1 Lettuce 10	Lettuce 50 40% Cream 10	Bacon 20 40% Cream 20 Lettuce 10 Cucumber 30	Lettuce 50 40% Cream 10	Egg 1 Bacon 10 40% Cream 10 Lettuce 10 Cucumber 30	Lettuce 35 40% Cream 10
Nov. 25 to Nov. 28	Carbohyr. 11 Protein 24 Fat 63 Calories 707	Lettuce 60 40% Cream 15	Egg 1 40% Cream 15 Lettuce 20	Lettuce 60 40% Cream 15	Bacon 20 40% Cream 15 Lettuce 20 Cucumber 30	Lettuce 60 40% Cream 15	Egg 1 Bacon 10 40% Cream 15 Lettuce 20 Cucumber 30	Lettuce 60
Dec. 13 to Dec. 18 (Discharge)	Carbohyr. 15 Protein 27 Fat 75 Calories 843	Lettuce 50 40% Cream 15	Bacon 10 40% Cream 15 Spinach 30	Lettuce 60 40% Cream 15	Egg 1 Bacon 10 40% Cream 15 Lettuce 50 Asparagus 30	Lettuce 60 40% Cream 20 Cucumber 30	Egg 1 Bacon 10 40% Cream 20 Lettuce 20 Cucumber 30 Spinach 30	Lettuce 60 40% Cream 20

TABLE 4.

Date Oct., 1921	Weight Kg.	Diet in Grams			Calories	Vol. cc. 16 hrs. amts.	Urine		Nitrogen G	Ammonia Nitrogen G	Sugar G	Sugar %	Blood (Fasting)		Plasma CO ₂ mm. Hg.	Alveolar Air CO ₂ mm. Hg.	Remarks
		Carbo- hydrate	Protein	Fat			Acetone	Diacetic Acid					Non-Protein mg/100 cc.	Fat %			
6	—	—	—	—	—	1400	++	++	6.7	1.2	35	0.36	30.6	2.4	28	28	Plasma creamy (Plasma fat 4.4)
7	31.7	36	62	21	593	2300	++	++	—	1.9	55	—	—	—	29	29	
8	32.1	30	59	33	653	2750	++	++	—	2.4	55	—	—	—	29	29	
9	33.2	28	54	31	607	2550	++	++	—	1.7	43	—	—	—	30	30	
10	34.0	24	42	41	633	3300	++	++	—	1.2	66	—	—	—	32	32	
11	34.5	23	41	40	616	3300	+	+	—	1.6+	46+	—	—	—	—	—	
12	35.0	—	do	—	—	2000+	+	+	—	—	47	—	—	—	—	—	
13	34.5	24	34	41	601	2950	+	+	—	—	68	0.33	—	2.30	—	—	*Aliquot
14	34.9	—	do	39	583	3400	sl.	sl.	—	—	46	—	—	—	—	—	
15	35.3	—	do	—	—	2900	+	+	7.8*	—	46	—	—	—	—	—	
16	35.9	—	do	—	—	2800	+	+	7.3	1.0	46	—	—	—	—	—	
17	36.4	—	do	—	—	2400	+	+	7.8	—	54	—	—	—	—	—	
18	37.3	18	27	51	639	2300	sl.	sl.	7.8	—	40	—	—	—	—	—	
19	37.7	—	do	—	—	2700	+	+	—	—	40	—	—	—	—	—	
20	38.0	—	do	—	—	3000	+	+	—	—	29	—	—	—	—	—	
21	38.0	—	do	—	—	2200	0	0	—	—	49	0.32	29.4	1.44	—	—	
22	38.2	—	do	—	—	2900	—	—	—	—	44	—	—	—	—	—	
23	37.7	—	do	—	—	2900	sl.	+	0.9	—	—	—	—	—	—	—	
24	38.2	—	—	—	—	2700	+	+	—	—	18	—	—	—	—	—	
25	37.2	9	25	54	622	2800	0	0	5.2*	—	25	—	—	—	—	—	Six meals began
26	38.4	—	do	—	—	2100	0	0	5.2	—	21	—	—	—	—	—	*Aliquot
27	38.4	—	do	—	—	2200	0	0	5.2	—	15	—	—	—	—	—	
28	38.4	—	do	—	—	2800	0	0	—	—	36	0.33	—	1.26	—	—	
29	38.0	—	do	—	—	2800	0	0	—	—	28	—	—	—	—	—	
30	38.3	—	do	—	—	2300	0	0	5.2	—	32	—	—	—	—	—	
31	38.5	—	do	—	—	2400	0	0	8.64	1.12	34	—	—	—	—	—	
Acetone & B-Oxybu- Diacetic Acid tyric Acid (as Acetone)																	
Nov. 1	38.5	—	do	—	—	2530	2.274	2.777	7.14	0.76	26	—	—	—	—	—	During this period broth, bran biscuits, jellies or thrice- washed vegetables were ex- cluded
2	38.5	—	do	—	—	3040	5.250	5.250	7.48	0.77	19	0.32	28.8	—	48	—	
3	37.3	—	do	—	—	3230	1.150	5.662	7.95	0.77	16	—	—	—	—	—	
4	36.6	—	do	—	—	2650	2.396	3.064	6.36	0.67	15	—	—	—	—	—	
5	35.8	—	do	—	—	3300	5.478	2.631	8.51	0.89	14	—	—	—	—	—	
6	35.2	—	do	—	—	3200	—	—	—	—	13	—	—	—	—	—	
7	34.6	1	7	12	140	2500	—	—	—	—	10	0.32	28.8	1.43	—	—	
Acetone																	
8	34.4	—	Fasting	—	—	2000	—	0	—	—	8	—	—	—	—	—	
9	34.2	—	Fasting	—	—	2900	—	0	—	—	9	—	—	—	—	—	
10	34.2	2	12	21	245	2500	—	0	—	—	5	—	—	—	—	—	
11	33.6	—	do	—	—	3100	—	0	—	—	6	—	—	—	—	—	

[illegible]

TABLE 5.

Date	Admission	Weight k.g.	Diets in Grams			Calories	Total Nitrogen	Sugar	Diacetic Acid	Glucose entered the metabolism from exogenous sources		Glucose Utilized	Blood Sugar %	Remarks
June 25, 1919	First	46.0	Carbohydr.	Protein	Fat	816	—	0	0	71	71	0.135		
January 11, 1920	Second	37.9	4	82	56	848	*	0	0	58	58	0.176		
January 19-26, 1921	Third	37.9	13	23	91	963	10.1	35	+	59	24	0.28		
March 27-30, 1921	Fourth	36.6	21	76	36	710	17.5	75	+	91	16	0.31		
October 16-19, 1921		31.8	21	31	45	611	7.8	47	+	59	12	0.33		
October 25-28, 1921		Wgt. on admis- sion (31.8) is used for calculation.	9	25	54	622	5.2	24	0	38	14	0.33		
Nov. 1-5, 1921			9	25	54	622	7.5	18	0	35	17	0.32		
Nov. 9, 1921	Fifth			Fasting			6.3	9	0	33	24			Multiple
Nov. 25-28, 1921			11	24	63	707	5.8	0	0	41	41	0.23		Meals
Nov. 29-Dec. 2, 1921			13	25	69	778	5.2	0	0	42	42			
December 3-6, 1921			15	27	75	843	5.3	25	0	44	41	0.27		

Note: The amounts of glucose which entered the metabolism from exogenous and endogenous sources is calculated on the supposition that the patient needed 25 calories per kilogram of body weight per day.

*The nitrogen in the urine was not determined and the nitrogen equilibrium is assumed.

Fifth Period at New England Deaconess Hospital (October 6, 1921, to December 18, 1921).

The severe acidosis which existed on admission decreased markedly in the first two weeks at the hospital. The lack of improvement in the tolerance for carbohydrate forced us to try the effect of "six meals" with this patient, a plan which had been studied in a preliminary way with other cases of Dr. Joslin by Dr. Horace Gray. Therefore, after a fast of one day, the patient was placed upon a diet on October 24, 1921, which was arranged as shown in Table 3.

The results of this plan of treatment are shown in Table 4. It will be seen that a slight decrease in the elimination of glucose was obtained by this method, and after a subsequent fast of two days, the addition of food to the reduced diet caused a decreased elimination of glucose, which may be explained by a decreased katabolism of the tissue protein as shown by the amount of nitrogen excreted. Thus, on November 26, was finally achieved cessation of the glycosuria which had persisted since May, 1920, namely, nineteen months. On the twenty-eighth of the same month, the blood sugar was estimated at 0.23 per cent., which was the smallest figure obtained since January, 1920, *i.e.*, nearly a year. Nitrogen balance had also been approached, and at last on December 15, 1921, the urinary nitrogen was calculated as smaller than that contained in the food. The qualitative reaction for diacetic acid had been negative since October 27, 1921. The patient was discharged on December 18 with a diet of carbohydrate 15 grams, protein 27 grams, and fat 75 grams, and calories 843. The blood sugar was 0.27 per cent., body-weight 31.8 kilograms on discharge.

The improvement in assimilative power for carbohydrate is further brought about by applying Woodyatt's formula⁸ to the diet employed at different periods. This is shown in Table 5.

From this it is evident that the patient utilized 71 grams of glucose on the first admission, 58 grams of glucose on the second admission, but only 24 grams on the third admission, thus showing a definite loss in the power of carbohydrate assimilation. On October 16, 1921, when she was admitted for the fifth time, she utilized only 12 grams glucose. However, after the "multiple meal" schedule had been introduced, the amounts of nitrogen, as well as sugar, eliminated, gradually decreased, and on the third of December, 1921, the tolerance rose to 41 grams of glucose. Comparing the two periods, January 19-26, 1921, and November 29 to December 2, 1921, it will be seen that the differences in the amounts of foodstuffs ingested in the two periods were these, namely, that 20 grams more fat were given and 185 more calories were produced at the former period, the

Subsequent History.—On July 6, 1921, the glycosuria amounted to 2.5 per cent., and there was a marked ketonuria. On September 23, the same findings were recorded on a diet of carbohydrate 10 grams, protein 50 grams, fat 60 grams, and calories 804. The blood sugar on this day was 0.33 per cent.

From the foregoing statement the following facts will be noticed: A constant and abnormally high blood sugar, a negative nitrogen balance, persistent glycosuria May, 1920, to October 6, 1921, and the frequent presence of acidosis. For these reasons the patient was re-admitted October 6, 1921.

amounts of carbohydrate and protein remaining almost the same. Nevertheless, the amount of nitrogen eliminated at the former period was twice as much as that of the latter and the quantity of glucose entering into metabolism decreased from 59 grams in the former to 42 grams in the latter period.

Subsequent History.—Since the patient left the hospital she followed her diet faithfully. On January 11, 1922, the urine showed 0.3 per cent. sugar and slight reaction for diacetic acid. The blood sugar was 0.22 per cent. and blood fat 0.74 per cent., a satisfactory contrast to 0.36 per cent. blood sugar and 2.4 per cent. blood fat on October 7.

The above experiments suggest that the gratifying result obtained is due to the six split meals, but it is possible that the lower carbohydrate fat ratio in the divided meal period may have also been a factor. Absolute proof would not be furnished unless the identical diet, both in variety and quantity, should be given the same patient as three meals under the same conditions for a definite time. The justification for this paper is rather the fact that such an intractable glycosuria, withstanding many efforts at desugarization, disappeared with the new divided diet.

REFERENCES.

- ¹ Hofmeister: Arch. f. exp. Path. und Pharm., 1890, xxvi, 355.
- ² Staub, H.: Biochem. Zeitschr., 1921, 118, cxviii, 93.
- ³ Bang: Der Blutzucker, Wiesbaden, 1913.
- ⁴ Hamman and Hirschman: Johns Hopkins Hosp. Bull., 1919, xxx, 306.
- ⁵ Staub, H.: Zeitschr. f. klin. Med., 1921, xci, 44.
- ⁶ Sakaguchi, K.: Mitt. Med. Fak. Univ. Tokyo, 1918, xx, 439.
- ⁷ Newburgh, L. H., and Marsh, P. L.: Arch. Int. Med., 1920, xxvi, 647.
- ⁸ Woodyatt, R. T.: Arch. Int. Med., 1921, xxviii, 125.

The Massachusetts Medical Society.

PROGRAM OF THE ONE HUNDRED AND FORTY-FIRST ANNIVERSARY.

The Exercises of the Anniversary will be held on Tuesday, June 13, and Wednesday, June 14, at the Harvard Medical School.

STANDING COMMITTEES.

OF ARRANGEMENTS

Donald Macomber K. G. Percy F. J. Callanan
Dwight O'Hara J. C. Rock L. S. McKittrick

ON PUBLICATIONS AND SCIENTIFIC PAPERS

E. W. Taylor R. B. Osgood F. T. Lord
R. M. Green A. C. Getchell

ON MEMBERSHIP AND FINANCE

S. B. Woodward A. Coolidge, Jr. Samuel Crowell
Gilman Osgood Homer Gage

ON ETHICS AND DISCIPLINE

Henry Jackson T. J. Robinson David Cheever
F. W. Anthony R. H. Seelye

ON MEDICAL EDUCATION AND MEDICAL DIPLOMAS

C. F. Painter J. F. Burnham A. G. Howard
R. L. De Normandie H. P. Stevens

ON STATE AND NATIONAL LEGISLATION

J. W. Bartol F. G. Wheatley E. H. Stevens
F. E. Jones J. S. Stone

ON PUBLIC HEALTH

E. H. Bigelow Annie L. Hamilton E. F. Cody
Victor Safford R. I. Lee

DELEGATES AND ALTERNATES TO THE HOUSE OF DELEGATES OF THE AMERICAN MEDICAL ASSOCIATION.

DELEGATES

F. B. Lund
E. F. Cody
H. G. Stetson
C. E. Mongan
J. F. Burnham

ALTERNATES

W. H. Robey, Jr.
F. W. Anthony
L. A. Jones
Gilman Osgood
A. R. Crandell

OFFICERS OF THE SOCIETY.

1921-1922

JOHN W. BARTOL, President
3 Chestnut Street, Boston 9.
BRACE W. PADDOCK, Vice-President
7 North Street, Pittsfield.
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42 Eliot Street, Jamaica Plain, Boston 30.
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EDWIN H. BRIGHAM, Brookline, Librarian Emeritus
8 The Fenway, Boston 17
DONALD MACOMBER, { Chairman of Committee of Arrangements.
321 Dartmouth St., Boston 17.

SECRETARY'S NOTICE.

All communications as to membership, especially changes of residence and address, should be sent to the Secretary, who keeps a constantly corrected official list of the Fellows and their addresses. District Secretaries and Treasurers should true their lists by the monthly official lists of transfers and changes published in the *Journal*.

TREASURER'S NOTICE.

ASSESSMENTS SHOULD BE PAID TO DISTRICT TREASURERS BEFORE THE MEETING, OR, IN THE CASE OF NON-RESIDENTS, TO THE TREASURER.

ASSESSMENTS WERE DUE JANUARY 1ST, BUT FOR THE CONVENIENCE OF MEMBERS WHO HAVE BEEN UNABLE TO PAY, ASSESSMENTS WILL BE RECEIVED FOR THE TREASURER AT THE MEETING.

THE JOURNAL

The *Boston Medical and Surgical Journal*, the official organ of the Society, will be sent to Fellows who have paid their assessments, and to such Honorary and Retired Fellows as may apply for it.

GENERAL INFORMATION

A Bureau of Information will be maintained by the Committee of Arrangements during Tuesday and Wednesday in Building A (Administration Building) of the Harvard Medical School, 240 Longwood Avenue.

All Fellows are requested to register and procure their dinner tickets as early as possible at the Bureau of Information.

All General and Section Meetings will be held at the Harvard Medical School, with the exception of the Shattuck Lecture and the Annual Dinner, which will be held at the Boston Medical Library and the Copley-Plaza Hotel, respectively. Parking space for automobiles with supervision will be provided.

June 13, 1922

TUESDAY MORNING

From 8.30 to 9.45 o'clock

PROGRAM OF HOSPITAL CLINICS

BOSTON CITY HOSPITAL.—There will be the usual ward rounds on the Medical Services and routine operations on the Surgical Services.

MASSACHUSETTS GENERAL HOSPITAL.—There will be the usual ward rounds on the Medical Services and routine operations on the Surgical Services.

PETER BENT BRIGHAM HOSPITAL.—There will be the usual medical ward rounds and routine operations and a demonstration of interesting cases.

CARNEY HOSPITAL.—The Surgical Service will be represented by Drs. Bottomley, Mahoney and Fraser, who will perform operations and show cases. Drs. Johnson and Phaneuf of the Gynecological Service will also operate and report cases. Drs. Fennessy and Denning of the Medical Department will show cases and emphasize particularly points of differential diagnosis and treatment.

CHILDREN'S HOSPITAL AND INFANTS' HOSPITAL.—There will be a demonstration at the Children's Hospital of interesting cases at hand in the two hospitals.

PSYCHOPATHIC HOSPITAL.—Cases of post encephalitis lethargica will be shown if such cases are available, and other interesting material.

FREE HOSPITAL FOR WOMEN.—Routine operations will be held in the operating room beginning at 7.30. Dr. W. P. Graves will operate.

BOSTON LYING-IN HOSPITAL.—There will be ward rounds and demonstrations of interesting cases conducted by Dr. J. R. Torbert.

At 10 o'clock

MEETING OF THE SECTION IN SURGERY

Harvard Medical School, Building C, Amphitheatre.

Officers of the Section of Surgery

J. C. Hubbard, M.D., Boston, *Chairman*.

G. A. Leland, Jr., M.D., Boston, *Secretary*.

1. "Malignancy in the War Veteran."
By William F. Cotting, M.D., Boston.
2. "Tuberculosis of the Breast."
By Peirce Henry Leavitt, M.D., Brockton.
Discussion opened by F. B. Mallory, M.D., Brookline, and R. B. Greenough, M.D., Boston.
3. "Etiology of Sterile Marriages from an Analysis of 500 Case Records."
By Donald Macomber, M.D., West Newton.
Discussion opened by Edward Reynolds, M.D., Boston.
4. "Fractures of the Lower End of the Radius Associated with Fractures or Dislocations of the Lower End of the Ulna."

By John Homans, M.D., Brookline.

Discussion opened by F. J. Cotton, M.D., Boston.

5. "Heritage and the Reckoning of a Surgeon."
By Michael F. Fallon, M.D., Worcester.
Discussion opened by W. P. Bowers, M.D., Clinton, and J. T. Bottomley, M.D., Boston.
6. "The Treatment of Tonsils by Radiation from Radium Salts instead of by Operation."
By Francis H. Williams, M.D., Boston.
Discussion by G. W. Gay, M.D., Boston.

At 10 o'clock

MEETING OF THE SECTION OF PEDIATRICS

Harvard Medical School, Building B, Amphitheatre.

Officers of the Section of Pediatrics

Maynard Ladd, M.D., Boston, *Chairman*.

J. Herbert Young, M.D., Newton, *Secretary*.

1. "A Consideration of the Water Balance in Infants."
By Oscar M. Schloss, M.D., Professor of Pediatrics, Harvard Medical School, Boston.
Discussion opened by T. M. Carpenter, Ph.D., Nutrition Laboratory of the Carnegie Institute, Boston.
2. "Child Hygiene: The Pediatricists' Opportunity."
By Eugene R. Kelley, M.D., Massachusetts Commissioner of Public Health, Boston.
Discussion opened by M. E. Champion, M.D., Boston.
3. "Tonsillectomy in the Contagious Diseases."
By Edwin H. Place, M.D., Assistant Professor of Pediatrics, Harvard Medical School, Boston.
Discussion opened by C. R. C. Borden, M.D., Brookline.

At 11.30 o'clock

ANNUAL MEETING OF THE SUPERVISORS

Harvard Medical School, Building A, Amphitheatre.

TUESDAY NOON

ANNUAL MEETING OF THE COUNCIL

Harvard Medical School, Building A, Amphitheatre.

From 1.30 to 2.30 o'clock

LUNCH WILL BE SERVED

to members on the Terrace on the payment of a small charge.

TUESDAY AFTERNOON

At 2.30 o'clock

MEETING OF THE SECTION OF MEDICINE

Harvard Medical School, Building C, Amphitheatre.

Officers of the Section of Medicine

Herman T. Baldwin, M.D., Chestnut Hill, *Chairman*.
Francis M. Rackemann, M.D., Boston, *Secretary*.

1. "Focal Infections in Pregnancy."
By John E. Talbot, M.D., Worcester.
Discussed by S. B. Wolbach, M.D., James R. Torbert, M.D., and Frederick C. Irving, M.D., all of Boston.

2. "Epilepsy."

By Douglas A. Thom, M.D., Belmont.
Discussed by Stanley Cobb, M.D., Boston.

3. "The Physician and the Laboratory."

By Francis W. Peabody, M.D., Boston.
Discussed by George R. Minot, M.D., Boston.

4. "Lead Poisoning."

By Wade S. Wright, M.D., Newton Center.
Discussed by Joseph C. Aub, M.D., and John A. Key, M.D., Boston.

5. "Treatment of Rheumatic Fever."

By Homer F. Swift, M.D., New York City.
Discussion by R. I. Lee, M.D., Cambridge.

At 2.30 o'clock

MEETING OF THE SECTION OF
TUBERCULOSIS

Harvard Medical School, Building B, Amphitheatre.

Officers of the Section of Tuberculosis

Edward O. Otis, M.D., Boston, *Chairman*.
Sumner H. Remick, M.D., Reading, *Secretary*.
"Tuberculosis in Children"

(a) From the Standpoint of the Pediatricist.

By Professor (Emeritus) John Lovett Morse, M.D., Harvard Medical School.

(b) From the Standpoint of the Orthopedist.

By Joel E. Goldthwait, M.D., Boston, Brigadier-General M. R. C., U. S. A.

(c) From the Standpoint of the Internist.

By Henry D. Chadwick, M.D., Superintendent of the Westfield State Sanatorium (illustrated with lantern slides).

(d) From the Standpoint of the Surgeon.

By Lloyd T. Brown, M.D., Assistant Visiting Orthopedic Surgeon, Massachusetts General Hospital, Boston.

"The X-Ray in the Diagnosis of Pulmonary Tuberculosis."

By Samuel W. Ellsworth, M.D., Physician for X-Ray Service, Boston City Hospital (illustrated with lantern slides).

At 2.30 o'clock

MEETING OF THE SECTION OF HOSPITAL
ADMINISTRATION

Harvard Medical School, Building E, Amphitheatre.

Officers of the Section of Hospital Administration

J. B. Howland, M.D., Boston, *Chairman*.
N. W. Faxon, M.D., Boston, *Secretary*.

1. "The Use of Pathological Material in Small Hospitals."

By John F. Kenney, M.D., Pawtucket, R. I.

2. "What Medical Statistics shall be Published in the Hospital Annual Report?"

By David Cheever, M.D., Boston.

3. "The Place of the Full Time and Part Time Physician in the Modern Hospital."

By Roger I. Lee, M.D., Cambridge.

TUESDAY EVENING

At 8 o'clock

THE SHATTUCK LECTURE

Boston Medical Library, John Ware Hall.

"The Treatment of Diabetes Mellitus."

By Elliott P. Joslin, M.D., Boston.

After the lecture light refreshments will be served in the Supper Room.

June 14, 1922

WEDNESDAY MORNING

From 9.30 to 10.30 o'clock

ONE HUNDRED AND FORTY-FIRST
ANNIVERSARY

Harvard Medical School, Building C, Amphitheatre.

DEPARTMENT OF PHYSIOLOGY

Demonstrations and Papers, under the supervision of Alfred C. Redfield, M.D.

1. "The Experimental Production of Traumatic Shock."

By Mr. F. R. Griffith.

2. "The Growth of School Children."

By W. T. Porter, M.D.

3. "The Distribution of Lead in Acute and Chronic Lead Poisoning."

By Miss Anne Minot.

4. "The Pulmonary Arterial Pressure."

By C. K. Drinker, M.D.

From 10.30 to 11.30 o'clock

Harvard Medical School, Building E, Amphitheatre.

DEPARTMENT OF PHARMACOLOGY

Demonstrations by Reid Hunt, M.D.

1. "The Newer Drugs of Greatest Value to the Practitioner."

2. "Latest Advances in Local Anaesthesia."

3. "New Therapeutic Agents and Their Value."

4. "Experimental Demonstration of Salvarsan."

At 11.30 o'clock

BUSINESS OF THE ANNUAL MEETING

Harvard Medical School, Building C, Amphitheatre.

Including:

1. The following amendment to the By-Laws, as approved by the Council, February 2, 1921, and referred to this meeting by the Society, June 1, 1921:

That Chapter IV, Section 3, of the By-Laws be so amended that the last sentence of paragraph one shall read: "Councilors only shall be eligible to the offices above named," viz., president, vice-president, secretary, treasurer and librarian, thus conforming the By-Laws to the Statutes, 1803, Chapter 85, Section 3, Digest, Article V, paragraph 3, which provides that the Councilors shall "appoint, from among themselves, a president, and such other officers of the said corporation as are to be so appointed."

2. Concerning a petition to the Legislature for an amendment to Chapter 15, Section 9, of the Statutes of 1781 (Article X of the Digest), increasing the amount of annual income from real and personal estate that may be received by the Society.

WEDNESDAY NOON

THE ANNUAL DISCOURSE

Harvard Medical School, Building C, Amphitheatre.

"The International Mind in Medicine."

By Kendall Emerson, M.D., Worcester.

From 1 to 2 o'clock

LUNCH WILL BE SERVED

to members on the Terrace on the payment of a small charge.

WEDNESDAY AFTERNOON

From 2 to 3 o'clock

Harvard Medical School, Building C, Amphitheatre.

DEPARTMENT OF CHEMISTRY

"Modern Blood Analysis."

By Otto Folin, M.D., and Helsing Berglund, M.D.

From 3 to 4 o'clock

Harvard Medical School, Building E, Amphitheatre.

DEPARTMENT OF HYGIENE

Demonstrations under the supervision of M. J. Rosenau, M.D.

1. "The Schick Test."
2. "The Wassermann Reaction."
3. "A Discussion on Botulism and Food Poisoning."
4. "Vaccines and Other Experimental Work on Pneumonia and Influenza."

WEDNESDAY EVENING

At 7 o'clock

THE ANNUAL DINNER

The Annual Dinner will be served in the Ballroom at the Copley-Plaza Hotel. Informal dress. The tickets will be \$1.00 and may be bought either at the Bureau of Information at the Harvard Medical School, Building A, during Tuesday and Wednesday, or at the Hotel, where they will be on sale from 6 to 7 P. M.

Fellows desiring to sit together in groups will please send their names to the chairman of the Committee of Arrangements, and the proper reservations will be made.

It is necessary that the chairman of the Committee know beforehand the approximate number of those who will attend the dinner, and for that purpose a reply postal card has been sent with the official program. It is earnestly requested that each Fellow fill out the card and mail it as soon as possible.

Book Reviews.

Ephraim McDowell, "Father of Ovariectomy" and Founder of Abdominal Surgery; with an Appendix on Jane Todd Crawford. By AUGUST SCHACHNER, M.D., F.A.C.S., Louisville, Kentucky. Philadelphia and London: J. P. Lippincott Company. 1921.

"The motive for undertaking this work, the aims involved therein, and the results, which I hope have, at least in part, been accomplished, are set forth in detail in the foreword.

"Much as I have endeavored to avoid it, a certain degree of repetition was inevitable, and for this I offer the reader my apology.

"Although I have faithfully labored to present the facts, I do not flatter myself that the following pages are entirely free from error, and therefore beg the indulgence of the reader for any errors or omissions that may have crept in.

"I have made free use of N. S. Shaler's work, 'A Pioneer Commonwealth,' in the historical sketch of Virginia and Kentucky, as well as of the brochure of Dr. Eugene R. Corson on 'John Bell—Surgeon,' in my sketch of John Bell.

"Extracts from the writings of others have been added, not alone as proper correlatives to the biographies of Ephraim McDowell and Jane Todd Crawford, but also for the convenience of future students of the lives of these benefactors of the human race.

"While I have endeavored to give credit to those authors from whose contributions extracts have been made, I also confess my indebtedness to those authors from whose contributions extracts were not made, but whose writings have influenced and aided me in this undertaking.

"Dr. McDowell placed in the diadem of the art and science of surgery its most brilliant gem and in the eons of time becomes the indirect emancipator of countless millions of human beings from protracted suffering and premature deaths."

The foregoing has been taken, in part, from the preface, in part from the text of the volume under consideration. It is obvious that the writer is an enthusiast. On the whole, this is a desirable quality in a biographer. The book is very interesting, and well worth careful reading. Pictures, paper, letterpress and binding are also worthy of much praise. It is cordially recommended to every American and British physician and surgeon, and in particular to those (fortunately a rapidly increasing number) who are interested in the honorable past, and in the important individuals of Medicine, with a big "M."

The Etiology and Pathology of Typhus—Being the Main Report of the Typhus Research Commission of the League of Red Cross Societies to Poland. By S. BURT WOLBACH, JOHN L. TODD and FRANCIS W. PALFREY. Harvard University Press, Cambridge, Mass. 1922.

The work of Dr. Wolbach and his associates was well planned and well executed.

The observations confirm and amplify the findings of Fraenkel, who first pointed out the characteristic vascular lesions of typhus. Very strong evidence is adduced indicating that *Rickettsia prowazeki* is the cause of typhus fever. The virus of typhus fever in the louse was not separable from *Rickettsia prowazeki*, but a certain proportion of lice fed on typhus patients did not show the presence of this organism. A similar proportion of lice failed to transmit the disease. *Rickettsia prowazeki* in the louse was found to be intracellular. An extracellular form of *Rickettsia* was found in some of the Polish lice.

Incidentally, facts were observed tending to show that the extracellular organisms were *Rickettsia pediculi* and the cause of trench fever.

The clinical observations of Palfrey are of special value because he had exceptional opportunities for careful study from selected material.

Not the least important data are the observations on the pathology of typhus in the guinea pig.

The contributors and members of the commission merit congratulation not only for their important contributions to the knowledge of typhus fever but also for the excellent presentation of the data.

Foods of the Foreign-Born in Relation to Health. By BERTHA M. WOOD, Dietitian, Food Clinic, Boston Dispensary. With a Foreword by MICHAEL M. DAVIS, JR. Pages 98. Boston: Whitcomb & Barrows. 1922.

This small book by the dietitian of the Food Clinic at the Boston Dispensary is written for the purpose of comparing "the foods of other peoples with that of the Americans in relation to health."

Michael M. Davis, Jr., in his foreword remarks that "to know the characteristic foods of the foreign-born, the food flavors, the food habits of each of the chief races of immigrants found in this country, is an essential part of the knowledge which should be possessed by the physician, the public health nurse, the social worker, and the dietitian who deal with these newcomers in America."

In her discussion of "Dietary Backgrounds," Miss Wood well summarizes the dietary situation from the point of view of the new arrival in this country in the following paragraphs:

"It is much easier for the dietitian to learn the foods of the foreign-born than for these people to adjust their finances to a new dietary. They are willing to learn, but who will teach them? Who knows their food? How many and which ones shall they continue to use to meet their daily needs and their new financial responsibilities? Where shall they buy them? Even the dishes to cook in are of a different type. Which kind produces the familiar results? Their housing conditions are changed; their style of clothing must be changed; many of their social customs as well as their religious ideals must be given up; the only habit and custom which can be preserved in its entirety is their diet. This is made possible because they find in America, as in no other country, all their native raw food materials.

"There is much that we may learn from these people, and equally much for them to

learn from us with profit. If we then study their customs and acquaint ourselves more and more with their foods, we shall not only broaden our own diet by the introduction of new and interesting dishes but also we shall be better able to help these foreign born to adjust themselves to new conditions with as few changes as possible.

"A dietitian has never been so honored, in college or out, as she will be by these foreign-born people when once she talks to them of their familiar foods. An Armenian storekeeper found a fellow-countryman, a chef in an Armenian restaurant, who was suffering from indigestion. He said to him, 'You come with me. I take you to the smartest woman you ever knew. She knows our foods; she tell you what to eat; you feel better.'

"To meet the foreign-born taste, the principal requirement is to give the flavor; any nurse or dietitian can measure the amount in calories or grams when she once knows the materials and how to combine them."

Miss Wood has considered the foods of the Mexicans, Portuguese, Italians, Hungarians, Poles and other Slavic peoples, the peoples of the Near East, and the Jews. The only regret is that her review has not also included the foods of the French, the Germans and the Scandinavians. It is to be hoped that these may be included in the next edition of this little book.

The book itself should interest those discriminating persons who enjoy worth-while additions to their own dietaries. It cannot fail to stimulate all health workers to consider the dietary problems of the foreign-born from a new and wholly rational point of view—that of the psychological reactions of peoples to involuntary changes in their national food habits.

Principles of Medical Treatment. Fifth Revised Edition. By GEORGE CHEEVER SHATTUCK, M.D., A.M., with contributions by other writers. Case History Series. Boston: W. M. Leonard. 1921.

In these days of multivolume systems of treatment, filled with theory and speculation, it is refreshing to come upon a small volume containing the results of practical clinical experience. In the "Principles of Medical Treatment" these are given in sufficient detail to insure utility, and with sufficient brevity to avoid obscurity. The principles given represent the personal experience of the writers, and are therefore free from inherited fallacies that often persist through generations of "systems."

The arrangement of the text is excellent. Of particular value are the sections on diagnosis.

Successful treatment demands correct diagnosis, and the majority of incorrect diagnoses are more often due to the physician's failure to appreciate the possibilities in the case than to lack of technical aids. The list of conditions to be excluded which appears almost at the beginning of each article is therefore exceedingly valuable (*vide* Acute Indigestion).

The chapters on medication begin with a foreword which every medical student should be obliged to learn by heart, and which all practitioners should read frequently. The chapters which follow are well arranged, and the list of drugs and non-medicinal preparations is well selected.

This book belongs in that group of small, easily readable volumes which can be easily referred to, and in which there is to be found a surprisingly large number of facts. It should, therefore, be found in every physician's library.

Psychoanalysis: Its Theories and Practical Application. By A. A. BRILL, M.D. Third Edition. PP. 468. Philadelphia and London: W. B. Saunders Co. 1922.

After the initial antagonisms toward psychoanalysis in America, antagonisms partly based on ignorance of its theories and practice and partly because its fundamental truths produced emotional discomforts in those who had not solved their own inner conflicts, the subject entered upon a new phase of widespread interest. This popular interest has produced what Freud a few years ago termed "wild psychoanalysis" and against which he issued a warning, for most of this popular interest is not psychoanalysis at all, but rather a caricature and a distortion of the subject. Consequently and unfortunately we are in the midst of a veritable mental epidemic which has interpenetrated in every direction.

Certain individuals without adequate training in neurology or psychiatry are practising what they term "psychoanalysis" or a "modification" of it; literary critics are using psychoanalytic terms in their writings, in most cases incorrectly; novelists are having their heroes and heroines psychoanalyzed in a manner to which no analyst would subscribe; we are even told how to psychoanalyze ourselves, a procedure as manifestly impossible as to perform a major surgical operation on ourselves; and finally there has appeared a veritable flood of magazine articles and books, which distort the entire subject or inaccurately reproduce the work of the American pioneers of the subject. In the course of events, this superficial flood can never overwhelm psychoanalysis as practised and developed by those who have had a fundamental training, any more than the advertising of certain "female regulators" can

injure gynecology or the "cancer cures" harm the work of the well-trained surgeon.

In the last few years, out of this heterogeneous mass, there have been published in America a few sound volumes on psychoanalysis written by physicians who have had the necessary experience for its understanding and practice. In the successful application of the psychoneuroses precipitated by the war, psychoanalysis has gained many new adherents among the medical profession.

Among the books written by physicians on psychoanalysis, this volume by Dr. Brill, which has now reached its third edition, must be accorded a prominent place. It is the result of long experience with the science of psychoanalysis and is eminently practical in its tendencies, as it is concerned so largely with the clinical applications of the subject. It provides a safe and sound guide for the physician, as its subject matter leads naturally from the more simple manifestations in the psychopathology of everyday life to the more complex problems of homosexuality, the neuroses and various mental diseases, such as paranoia and the paraphrenias. For a clear and sound presentation of the subject of psychoanalysis, both from the clinical and theoretical standpoints, this volume can be highly recommended, and its third revised edition attests to both its soundness and popularity.

The Habit of Health. By OLIVER HUCKEL. PP. 128. New York: Thomas Y. Crowell Co. 1922.

This small volume appears to be a reprint and condensation of a larger book issued in 1909 under the title of "Mental Medicine." It embodies the usual kind of advice given before the limitations of suggestion and autosuggestion became known through the development of the analytical methods.

The Surgery of the Peripheral Nerve Injuries of Warfare. By HARRY PLATT, M.S. Lond., F.R.C.S. Eng. Edited by WILLIAM WOOD & Co. New York: John Wright & Sons, Ltd. Bristol: Simpkin, Marshall, Hamilton, Kent & Co., Ltd. London. 1921.

The book opens with a discussion of nerve regeneration, nerve topography, blood supply, etc. The author confirms the theory of regeneration only from the central portion and the necessity of a preëxisting neurilemmal framework for down growth of the axis cylinders. "The lesson of topography in relation to nerve suture is the simple avoidance of torsion of either proximal or distal stumps" (page 8). Nerve anastomosis is discussed but declared impractical.

A section on pathological changes, due to gunshot injuries, and clinical methods of investigation in general, is followed by a discussion of clinical syndromes. Four clinical syndromes are outlined:

1. Complete interruption.

2. Incomplete interruption, which is a syndrome presenting wide variations. One important form is spoken of as the "distal syndrome." In this form we find activity in the proximal muscles supplied by the injured nerve, but loss of function of the distal muscles and complete sensory paralysis. This, the author asserts, is very common in the nerve spindle and is due to the fact that a few motor fibres only can get by the block, and these are utilized in the proximal muscles, and also to the feeble control exerted by the spinal centers over the regenerative processes in the extreme distal part of the limb.

3. The syndrome of irritation with hyperaesthesia, pain and trophic changes, with resulting degeneration in the muscle and joint capsule.

4. The syndrome of recovery.

Part II is devoted to the general indications for nerve exploration, technique, and a tabulation of results obtained. The author states that exploration is in order under the following conditions:

"Where the syndrome of complete interruption has persisted unchanged after a period of observation during which repeated clinical examinations have been carried out. In the choice of the limits of this period of delay we are influenced by the known time after the injury or suture at which the signs of recovery should be expected. The early sensory changes—recession of the area of protopathic loss, or the clinical evidence of the neurotization of muscles supplied by the proximal branches, are seen at the earliest at or about the fourth month. As a working plan a period of observation lasting six months is reasonable, although it must be admitted it is essentially an arbitrary one. Recognizing that the anatomical limits of the lesion are sometimes definable in a given case before operative exploration, this full period of delay is often unnecessary, and, indeed, inadvisable, providing that the condition of the limb is such as to render any operation feasible.

1. With regard to the stage of safety after complete healing of the wound, a period of four to six weeks should be taken as a minimum; but this may be prolonged according to the influence of local conditions. In a considerable number of cases the attainment of sound healing and the preliminary nutritive treatment occupy the full six months period of probation.

2. Where the syndrome of incomplete inter-

ruption has continued without change for six months, and particularly when this is represented by the distal syndrome.

3. In the presence of the syndrome of irritation, either of a moderate degree showing no signs of subsidence, or in the severe type, causalgia, at the earliest possible moment (page 22).

The necessity for direct electrical stimulation at time of operation is emphasized—methods of repair, resection, neurolysis, etc., are discussed. Resection and suture, simple neurolysis and capsulectomy neurolysis (which consists in removing the layers of thickened perineurium from a spindle) are the only methods of treatment of the injured nerve which are advocated. The nerve graft is to be attempted only if all methods to bring about a direct suture fail. The chance of useful regeneration following grafting is very slight, though it must be admitted that the conduction of impulses can be established through such grafts. The number of motor and sensory fibers provided for in the graft is apparently too few for useful function. The flap operation, nerve anastomosis and tubulization are only mentioned as procedures of no value in surgery. Endoneurolysis, as advocated by Stoffel, and also the making of long slits in the scarred nerve (hersage) are condemned. The importance of direct suture and its difficulties are outlined, as are also the various methods of obviating nerve defects, such as transplantation, stretching and bone shortening.

The last portion of the book is given over to tables of the author's results, with discussion of each, and finally some suggestions as to the advisability of operation at the present time in nerve injuries due to wounds received during the World War.

The book is a short one, comprising as it does two Hunterian Lectures delivered by the author in 1921. It is concise, clean-cut and readable. Though one may not agree with every detail of it, it is a valuable guide to those interested in peripheral nerve surgery, whether due to war injuries or not.

An Essay on the Physiology of the Mind. By FRANCIS X. DERCUM, M.D. PP. 150. Philadelphia and London: W. B. Saunders Co. 1922.

This small volume is an attempt to present the basic facts of those reactions of the organism to environment which under given conditions manifest themselves in the qualities known as "mind." The subject is discussed from the purely materialistic standpoint and the data of comparative neurology, and the interpretation, therefore, is based upon biologi-

cal. morphological, physical and chemical considerations. In contradistinction to the modern dynamic approach to the subject, the essay is concerned with purely static considerations. According to the author, all the phenomena of consciousness in both its normal and abnormal aspects, such as hysteria and its protean manifestations, certain mental diseases, sleep and hypnosis, can be satisfactorily explained on the basis of the ameboid movements of the cortical neurones, a theory which is as fantastic as it is improbable, as this ameboidism of the neurones, even according to the references furnished by the author of this book, is not accepted by such a neuro-histologist as Ramon y Cajal or such a physiologist as Sherrington.

In his discussion of hysteria, for instance, he utilizes those older theories which fit into his preconceived ideas. For him hysteria is "a neuropathy of degeneracy," "its symptoms are always suggestive of a biological inferiority," while hysterical paralyses are produced by a retraction of the processes of the neurones in the particular part of the motor area of the cortex corresponding to the portion of the body involved. How strange all this sounds in the twentieth century! Any attempt to explain the nature of mind merely on the architecture of the nervous system is about as successful as an attempt to explain the nature of electricity on the basis of switchboards and insulated wires.

are common. The abdominal symptoms are generally due to the peritoneal investment of the seminal vesicle and may simulate chronic appendicitis, ureteral colic, ureteritis, or stone. Perforations of bladder by abscess from vesicles have been reported. In this series of cases five per cent. had rheumatic complications. The sexual status in about 35 per cent. was a negligible quantity, presenting every phase of derangement from mild inaptitude to complete impotency.

In view of the fact that seminal vesiculitis is not a distinct entity, but is invariably associated with prostatitis, trigonitis, and urethritis, differential diagnosis from these conditions is obviously unnecessary. Renal, ureteral and abdominal conditions often necessitate careful consideration. Gonococcus was demonstrated in at least 80 per cent. of the cases studied, white staphylococcus next in frequency.

In all cases in which they identified the gonococcus, they obtained a positive gonorrheal complement fixation test of the blood; of the complement test, they state that it is important in demonstrating the true gonorrheal nature of a given case where the culture and smear fail, and it is important in confirming their culture work. It is a means of diagnosis, but is not a guide to treatment or cure, except with limitation. Seminal vesiculitis invariably indicates a thorough routine of vesicle and prostatic massage, urethral irrigations, applications, distillations, etc. There is danger of over-massage. Operation not advisable where psychic elements are extensively developed.

The following classifications are all surgical possibilities: (1) acute catarrhal cases with marked general and urinary symptoms, (2) chronic fibrous, sclerotic cases, unrelieved by treatment; (3) pus and blood after massage, or ejaculation; (4) vesicle cases causing any obstruction to the higher urinary tract. [B. D. W.]

Current Literature Department.

ABSTRACTORS.

GERARDO M. BALBONI	CHARLES H. LAWRENCE
LAURENCE D. CHAPIN	HERMAN A. OSGOOD
AUSTIN W. CHIEVER	FRANCIS W. PALFREY
ISADOR CORIAT	EDWARD H. RISLEY
ERNEST M. DALAND	WILLIAM M. SHEDDEN
RICHARD S. EUSTIS	GEORGE G. SMITH
ROBERT M. GREEN	JOHN B. SWIFT, JR.
JOHN B. HAWES, 2D	WILDER TILESTON
JOHN S. HODGSON	BRYANT D. WETHERELL
FRED S. HOPKINS	

SEMINAL VESICULITIS; SYMPTOMS, DIFFERENTIAL DIAGNOSIS, TREATMENT AND BACTERIOLOGICAL STUDIES IN ONE THOUSAND CASES.

WHITE, EDWARD WILLIAM, and GRADWOHL, R. B. H. (*Journal of Urology*, Oct., 1921), say: The symptomatology of seminal vesiculitis naturally divides itself into neurotic, bladder and urinary, perineal and testicular, abdominal, sexual and rheumatic symptoms. This varied and extensive symptomatology is due in all probability to the anatomical proximity of the vesicles to the bladder, ureters, and prostate. Neurotic symptoms are present in 90 per cent. of the cases. Testicular and perineal symptoms were prominent in all cases. In all cases of long duration a trigone cystitis of varying degree was noticed. A discharge, if present, is invariably of an extremely chronic character and resists the usual forms of treatment. Frequency and dysuria

CONSTRICTION OF THE VESICAL NECK IN THE FEMALE.

CAULK (*Journal of Urology*, Nov., 1921) raises the question concerning treatment of vesical irritability which will not respond to any usual treatment, as dilatations of the urethra, instillations, endoscopic applications, hydraulic extensions of the bladder, urinary antiseptics, sedatives, high frequency cauterization and such.

In the case reported he was attracted to a thickening in the region of the internal sphincter very similar to the contracture of the vesical neck in the male. With the cautery punch he removed a large bite of tissue from the median portion of the bladder neck. Much caution in cutting must be used as it is not far into the vagina and thus a vesico-vaginal fistula would result. In the case reported the result was brilliant. His advocacy of this procedure is only for the rare case that does not respond to anything else. [B. D. W.]

TOXIC SYMPTOMS FROM LOCAL APPLICATION OF BELLADONNA.

KETKAR (*Ind. Med. Gazette*, Dec., 1921) reports a case of acute orchitis treated locally with glycerin-belladonna paint. Twelve hours after this application the patient's tongue had a greenish-blue coating; there was dryness in the mouth, nausea, giddiness, flushed face, dilated pupils and an erythematous rash. The local application was thoroughly removed and an emetic was given. The writer believes individual idiosyncrasy responsible for the toxic effects of the glycerin-belladonna paint, which is largely used in India without harmful consequences.

[L. D. C.]

A CLINICAL STUDY OF HALLE'S HYPOTHESIS CONCERNING RENAL TUBERCULOSIS.

HAMER AND MERTZ (*Journal of Urology*, Nov., 1921) say: Halle's Hypothesis divides chronic renal tuberculosis into three forms: the first, primary closed parenchymatous renal tuberculosis; the second, open tuberculous pyelitis; the third, combinations of the two preceding forms. The Hypothesis then takes up the avenues of infection resulting in the three forms:

I. Ascending urinary infection may be considered as occurring but seldom, if at all.

II. That the haematogenous is the only one which satisfactorily explains the genesis of the primary intraparenchymatous tubercles.

III. That the primary, open tuberculous pyelitis infection is probably of lymphatic origin.

IV. Thus the mixed forms are infected by both the haematogenous and lymphatic route.

A cure is "When all the physical signs and functional symptoms of the patient have disappeared, when the patient has regained a local and general health, when all pus and bacteria have disappeared from the urine, when all bladder symptoms have ceased, and when the patient's general health is good."

Halle says "there is no proof that all chronic renal tuberculosis may not be cured spontaneously or by medical treatment, and that the dictum, 'nephrectomy is the only rational treatment,' is not justified."

The authors present 28 cases divided according to the Hypothesis. In three the clinical diagnosis was made but the diseased kidney was not removed. In 24 cases nephrectomy was performed. In one the kidney was studied at autopsy. Seven had parenchymatous lesions only. Five had pyelitis lesion alone, and in 16 mixed lesions existed.

The conclusion is that a diagnosed tuberculous kidney should not be treated by medical measures, thereby hoping for a cure, but, no other contraindications existing, surgery should be undertaken. While at present in most instances of closed parenchymatous tuberculosis the kidney lesion remains undetected in its early stages, if in the future the recognition of its progress becomes possible, if unilateral, nephrectomy is still indicated because of its bearing upon the later development of a toxic nephritis in the opposite kidney.

[B. D. W.]

SUPRAPUBIC VERSUS PERINEAL PROSTATECTOMY. A COMPARATIVE STUDY OF NINETY PERINEAL AND THIRTY-EIGHT SUPRAPUBIC CASES.

HINMAN (*Journal of Urology*, Dec., 1921) says that it seems logical to conclude that in our hands Young's method of perineal prostatectomy is superior to the Fuller-Freyer method of suprapubic prostatectomy. The fatalities have been surprisingly few and due in the two instances to avoidable accidents. The functional results even in our earlier cases are unusually good in view of the advanced and complicated conditions treated. The general results are much better than those obtained suprapubically. No doubt greater experience would materially improve our suprapubic results, but we have grave doubt of ever being able to so perfect our suprapubic technic as to make it as surgically safe as the perineal. If we were to continue doing suprapubic prostatectomy we would unhesitatingly adopt as our routine in all cases just as careful and prolonged catheter preparation as for perineal, then preliminary cystotomy, followed by enucleation after a suitable interval. The perineal method has greater difficulties of anatomical approach, but our experience

proves that they can be mastered. The important detail of surgery by either method in order to be certain of cure is complete enucleation and good structural restoration. The only doubt of the perineal results in this respect is their permanence. The immediate results in our last 25 cases in which we have practiced radical *en masse* enucleation, are in every way satisfactory. This slight modification in perineal technic gives every assurance of complete and regular enucleation which we believe is even more certain and surgical than possible suprapubically. The cure, therefore, cannot fail of being just as lasting and permanent. Functional results being as good or better and as complete, the saving of several lives in every 100 that would be sacrificed by the suprapubic method leaves no room for hesitancy in the registration of our conviction that perineal prostatectomy is worthy of continuation in our hands and that its principles and technic are worthy of being taught to others.

[B. D. W.]

EXPERIENCES WITH RADIUM IN CANCER OF THE PROSTATE.

BUGBEE (*Journal of Urology*, Dec., 1921) reports 17 cases in detail, giving exactly how large doses, where, and via which route the radium was applied.

Five of these cases were treated by radium needles through the perineum and direct applications to the rectal surface of the prostatic lobes. Four of the five had intraurethral applications as well. In three of the five there is at present no hard tissue to be palpated per rectum; in one a single firm nodule, much reduced in size, is still present, and in the fifth, a rapid softening of the extensive infiltration is taking place, three-fourths of the original growth having disappeared. Two patients with hard, small, constricting prostates, one with nodules, the other with a hard posterior lobe, treated by the punch and radium, are distinctly improved. The hard nodules have disappeared and the residual diminished.

Four patients were given suprapubic drainage only; all were victims of systemic cancer, the drainage being given to relieve the distressing bladder symptoms only.

In none would it have been justifiable to add to the toxemia by attempting destruction of the growth by radium. Two died of systemic disease months after the drainage. The other two are alive, comparatively comfortable as regards the bladder, but failing from general carcinomatosis.

Four cases opened suprapubically and given application with needle from above through the entire prostate to the rectal wall, destroying cylinders of tissue in close proximity to the urethra and also needles introduced into the perineum, honeycombing the larger masses of cancer, are interesting. In two retention was complete; in one six ounces, and in the fourth one ounce. The involvement was extensive in all. One supplemented by surface application empties his bladder and the drainage wound is healed; no indurated areas can be palpated. A second is still draining, although no growth is palpable. The other two have suprapubic tubes. The growth in each has diminished in size. The rapidity with which these masses shrink and soften under applications of radium following needling is astonishing.

One patient, in whom a resection of the bladder wall and the prostate was carried out with subsequent external applications of radium, is free of recurrence one year after operation. The last case treated by perineal needles is improved.

[B. D. W.]

PERINEAL PROSTATECTOMY. A DETAILED STUDY OF ONE HUNDRED CONSECUTIVE CASES.

CECIL (*Journal of Urology*, Dec., 1921) believes that the best results obtainable in prostatectomies are by the perineal route; though he feels that suprapubic prostatectomies in competent hands offer splendid results and in the hands of those less competent better results than can be obtained in any other way. It is very definitely felt that the suprapubic space is more susceptible to infection and corresponding absorption than is the perineum.

His observations have been gone into in detail but will be of little statistical value unless those who are doing suprapubic prostatectomy will present statistical studies in such detail as to be of real value.

This series is concerning 103 cases who presented themselves with prostatic obstruction; 100 were operated on; two deaths occurred during preliminary treatment; both were toxic from back pressure; stimulants and infusions were of no avail. In one case operation was refused because the case had oedema of lungs and dilated heart, with murmurs, and a pulsating liver.

Youngest case operated on was 52; oldest, 90; greatest number were 67.

11 per cent. had had trouble for 10 years.

28 per cent. had come for treatment within first two years.

65 per cent. noticed frequency as initial symptom.

43 per cent. had difficulty with urination.

18 per cent. associated pain.

50 per cent. had complete retention at admission.

12 per cent. had used catheter at intervals. Hematuria occurred some time during course of disease in 15 cases; in 14 the hematuria was associated with beginning growths.

64 cases showed infected urine; 75 had albumin.

Residual urine was determined in 95 per cent. of the cases.

9 per cent. had 1000 c.c. or more; 27 per cent. had 500 c.c. or more; one case showed 4750 c.c. residual urine.

13 per cent. showed no enlargement on rectal examination.

53 per cent. gland was described as moderately enlarged.

Malignancy appeared in 11 cases; 8 of these were stony hard on examination.

Vesical calculi were present in 9 cases, diverticula in 8.

79 out of the 81 cases cystoscoped showed varied amount of trabeculation.

In 93 cases preliminary treatment was carried by retention catheter combined with intermittent catheterization. Two cases came in with suprapubic drainage and four were thus opened after admission.

Where large residual is present intermittent catheterization is the best; 32 per cent. were drained from two to four weeks.

50 per cent. were out of bed during entire preliminary treatment; 51 per cent. had fever; 2 cases, gall-bladder infection; 4 had epididymitis, and one, arthritis.

The phthalein test was used the day before operation for kidney efficiency as routine. The operative technique was the Young procedure in every case. There were no cases of perineal fistula.

In 51 per cent. of the cases the wound had closed before the 19th day and 74 per cent. before the 24th day.

One case of permanent incontinence occurred; there had been previously an operation for stricture.

The prostatic mortality rate was 2 per cent. Two

deaths from pneumonia on the 14th day; both were hemiplegia. [B. D. W.]

AN OPERATION FOR THE CURE OF INCONTINENCE ASSOCIATED WITH EPISPADIAS.

YOUNG (*Journal of Urology*, Jan., 1922) says that the most important previous article on epispadias with incontinence concerns the female, but many of the problems are similar in the male. A number have felt that the only relief from this kind of incontinence was transplantation of the ureters or elliptical portion of the trigone of the bladder, containing the ureteric orifices into the pelvic colon. Many articles quoted did nothing radical for the incontinence but contented themselves with a plastic operation upon the epispadias. In 1908 the author brought up a new procedure for the cure of incontinence of urine by suture of the urethra and vesical sphincters. The operation consisted of, first, suprapubic cystostomy; excision of mucous membrane along the posterior portion of the vesical orifice, uncovering the muscle; closure or narrowing of the prostatic orifice by transverse sutures of catgut; second, exposure of membranous urethra through the perineum, excision of mucous membrane of the floor on each side, exposure of sphincter muscle, closure with several layers of catgut sutures; third, suprapubic drainage. The result in this case was perfect.

Since then several cases of incontinence of urine, mostly post-operative, have been operated upon by this procedure with very satisfactory results. The paper is concluded by two very interesting cases given in detail, accompanied by very clear and excellent drawings. [B. D. W.]

CALCIFICATION OF THE SEMINAL VESICLES.

KRETSCHMER (*Journal of Urology*, Jan., 1922) declares that clinical interest in the subject of calcification of the seminal vesicles is apparently not very great, as evidenced by the scarcity of literature on this subject. A few of the well-known roentgenologists were written to, but none have definitely met with the condition.

The case reported showed extensive calcification of one seminal vesicle in a boy 14 years old. A previous diagnosis of stone in the bladder had been made and cystostomy done; no stone was found. A persistent sinus followed. Repeated examinations for tb. were negative. X-ray showed the shadow-graph catheter apparently laid in contact with the shadow under consideration. But rectal examination demonstrated a definite interval existed between this hard, calcified seminal vesicle and the shadow-graph catheter. A later diagnosis of left, pus kidney, probably tuberculous, was made. Nephrectomy was done. A guinea-pig subject showed acid fast bacilli. The suprapubic fistula was closed by operation.

There are probably two types of calcification which occur in seminal vesicles: Senile, because it occurs in men of advanced years, and calcification due to tuberculosis. [B. D. W.]

EXCRETION OF DYES.

SAXL AND SCHERF, from Winckebach's first medical clinic at Vienna, report (*Wien. klin. Woch.*, Feb. 9, 1922) a study of the excretion of dyes in the gastric juice and bile. They find that this occurs after parenteral introduction of methylene blue, and is hastened by the presence of gastric or duodenal ulcer. [R. M. G.]

MALIGNANT DISEASE OF THE ADRENALS, WITH REPORT OF A CASE.

FULLER (*Journal of Urology*, Jan., 1922) says that clinical manifestations of malignant tumors of the suprarenal glands are by no means pathognomonic. In addition to benign tumors, which occur in the greatest variety, we find true carcinomas and sarcomas. The latter malignant growths present many peculiarities in their growth and cellular pattern.

Palpable tumors present hard differentials, as perirenal abscess, growth of the kidney, gall-bladder, spleen, liver, etc. Ever present aids are urine analysis and pyelography.

Sarcoma is the most common of the primary malignant tumors of the adrenal.

The author reports a case in detail in which correct pre-operative diagnosis was made by careful study. The mass could not be removed by operation and patient died. The post-mortem, given in detail, gives the diagnosis of the tumor mass as a large, round-celled sarcoma. [B. D. W.]

MODIFICATION OF DIFFERENTIAL FUNCTIONAL TEST WITH PHENOLSULPHONEPHTHALEIN.

PETERSON (*Journal of Urology*, Jan., 1922) feels that under ordinary conditions there is probably leakage by the ureter catheters into the bladder, or there may be traumatic hemorrhage on insertion of ureteral catheters, causing poor drainage, and thus the usefulness of the differential test is often diminished.

After ureter catheterization has been accomplished and specimens collected for microscopic examination, one c.c. of phthalein is given intravenously, its time of appearance noted and the phthalein collected for 15 minutes. The bladder specimen is obtained either by having the patient void or drawn by a soft catheter.

An equal number of cubic centimeters, usually five c.c. or less, of each kidney specimen is now accurately measured into a suitable glass graduate and a few drops of sodium hydrate solution added to each. Each specimen is diluted with distilled water to 200 c.c., filtered and read in the colorimeter. The strength of color expressed in per cent. represents the concentration of the phthalein excretion from each kidney during the period of observation, without reference to the quantity actually excreted, and is constant without consideration of leakage into the bladder. Upon the completion of the concentration reading the remainder of each specimen is added to its respective side and the quantitative test completed in the usual way. This has been found of distinct value in the instances where marked leakage into the bladder has occurred.

[B. D. W.]

TREATMENT OF MALIGNANT DISEASE OF THE PROSTATE AND BLADDER.

GERAGHTY (*Journal of Urology*, Jan., 1922) writes that in the past 20 years the Urological Department of Johns Hopkins Hospital has registered approximately 450 cases of cancer of the prostate. In about 75 per cent. of the cases of cancer there was an associated prostatic hypertrophy. Cancer occurs in the same period of life as prostatic adenoma, so that the age of incident is of little value in the differential diagnosis. Unfortunately, cancer of the prostate seldom produces symptoms until the disease is far progressed. Urinary symptoms, as a rule, are not produced until the vesical orifice or

prostatic urethra becomes extensively involved, leading to their contracture.

In only 21 cases out of 400 was the cancer found confined to the prostate; it was considered possible to excise all of the cancerous tissue. In 95 per cent. of the cases surgery alone is hopeless so far as complete extirpation of the malignant disease is concerned.

The use of radium was begun in 1915. Since then it has been used in 150 cases alone or in conjunction with operation. Up to 18 months ago radium was used exclusively through the urethra and per rectum against the prostate. Those treated through the rectum usually show marked thickening and edema with considerable congestion, occasionally ulceration. Some developed obstruction, and colostomy was necessary. During the past 18 months the radium has been applied by needles inserted through the perineum into the prostatic tissue.

The cases thus treated changed markedly the consistency of the prostate, making it rather elastic, but relief of the obstructive symptoms was not proportional to the apparent change in the prostate. This is probably due in that a large percentage of carcinoma is associated with hypertrophy, and radium has little or no effect on adenomatous lobes.

Perineal prostatectomy is used to remove obstruction, and radium needles are then inserted in the cancerous tissue remaining that could not be reamed out. Obviously the application of radium to the prostate can have no influence on the pains due to metastasis.

Part II—Bladder.—Fulguration should be the method of choice in all benign and malignant papillomata which can be reached by endovesical means. Where the tumors are resistant to fulguration or are papillary carcinoma, non-infiltrating or superficially infiltrating, radium will give uniformly good results, and the result will be obtained by surface application to the tumors. Where the tumors are equally and distinctly infiltrating but sufficiently localized that resection could be carried out and the growths removed with a definitely healthy margin of tissue, this procedure should be employed and radium therapy not depended upon. Where, following the removal of the growth, the operator feels that possibly he has not given sufficient margin at any one point, radium should be inserted in the contiguous tissue. In the very extensive cases of carcinoma in which it is impossible to satisfactorily carry out endovesical treatment with radium, it is our custom now to open the bladder suprapubically, destroy as much as possible of the tumor or tumors with the actual canter, and then implant radium emanation tubes approximately at one to two centimeters distance from each other. What is to be expected from radium applied in this way in these perfectly hopeless cases it is too soon to pass judgment. So far, our results in these otherwise hopeless cases have not been very brilliant.

This paper is completed by seven plates showing the procedure of perineal prostatectomy.

[B. D. W.]

A SURVEY OF THE TREATMENT OF ACUTE GONORRHEA IN THE MALE.

FRASER (*Journal of Urology*, Feb., 1922) says that while gonorrhea occupies a lowly place as a killing disease, it unfortunately commands a very high position as a cause of disablement and ill-health. In the male it does not fall very far short of syphilis in this respect, but in the female it possibly supercedes it.

The author divides his treatment measures under seven headings:

1. General treatment: (a) Hygiene of the patient—Mental and physical cleanliness; purging; rest; correct support of scrotum. (b) Exercise—All active exercise forbidden, at least for first ten days. (c) Hydrotherapy—Minimum of 25 glasses daily; lime water; barley water. (d) Diet—Highly spiced foods, chutneys, sauces, pickles, coffee and strong tea avoided; absolutely no alcohol.

2. Medicinal treatment: (a) Antiseptics—Their use has now become obsolete and they are never indicated. (b) Sedatives—Forced fluids and alkali for burning; bromides for painful erections; morphine subcutaneously and ergot orally for hematuria; opium suppositories for loss of sleep. (c) Aperients—Salts of magnesium. (d) Diuretics—Alkalies and alkaline diuretics.

3. Local treatment: Urethral irrigation, urethral-vesical irrigation, urethral injection, and urethral instillation. The second is most satisfactory, as safest to inflamed mucous lining—potassium permanganate is best, holds a position all its own, though there is nothing ideal to fulfill the following—non-irritating to the tissues, penetrating to living tissues, toxic to the gonococcus, has not the property of precipitating albumin, is capable of dissolving pus and mucus, is capable of producing a free flow of serum from the inflamed surface.

4. Vaccine treatment: At the present time vaccine fulfills two functions in the acute stages of gonorrhea: 1. To promote increased resistance on the part of the blood to the attacking organisms. 2. To attack the organisms that have penetrated the urethral mucosa and are out of reach of the irrigating fluid. 3. To serve as a test of cure. The author discusses the various vaccines and notes the results.

5. Serum therapy is absolute failure in acute gonorrhea.

6. Chemo-therapy: the results shown here were uncertain and usually disappointing.

7. Electro-therapy showed apparently excellent results in the hands of Russo, who evolved this treatment.

[B. D. W.]

GONOCOCCAL INFECTIONS OF THE KIDNEY.

SIMMONS (*Journal of Urology*, Feb., 1922), in review of the literature, finds only 24 true cases of gonococcus infection of the kidney. There are cases reported of superimposed pyelitis with a gonorrheal urethritis. Usually the cause is the colon bacillus, the tubercle bacillus, or the staphylococcus. The discussion of route of kidney infection is given in fair detail. The conclusion arrived at in these cases is that they are of the hematogenous route, rather than a urinary ascending infection. The occurrence of kidney involvement of the acute urethritis varies from ten days to nine years.

A case is reported of a negro brought into the hospital with an acute abdomen without distention. The peritoneal cavity was normal, but congestion in the right upper quadrant of the omentum. A mass was felt in the region of the right kidney. A lumbar incision was done and a ruptured kidney exposed. It was drained, purulent fluid exuded, cultures and smears showed pure gonococcus. There is an accompanying table of the previous 24 cases found in the literature.

[B. D. W.]

CHRONIC INFECTIONS OF THE MALE URETHRA AND ITS ADNEXA.

PAUL (*Journal of Urology*, Feb., 1922) says that a review of a hundred cases brings a conclusion that

every male with the slightest symptom of a post-gonorrheal infection of the urethra and its adnexa is potentially infectious. That gonococci may persist in the male urethra or its adnexa for years. That the gonococcus may become imbedded in the male urethra without causing any of the symptoms of an acute inflammation. That unless infections of the adnexa are eradicated, cure of the urethral condition is next to impossible. That vaccines are of little direct benefit in the treatment, except to hasten the eradication of the gonococcus. That in the large majority of the cases these infections can be totally eradicated by appropriate treatment, irrespective of the length of time elapsed since the original infection.

These cases conform to the following clinical condition before being discharged as cured: Absence of urethral discharges, absence of any urinary disturbance, the urine macroscopically free of cloudiness, filaments, shreds or flakes, the urine free of microscopic pus, the whole urethra free from infiltrations on inspection. The prostate and seminal vesicles normal on palpation. Secretions of prostate and seminal vesicles showing not more than three pus cells to the high power field on two films, made three to eight weeks after treatment had been discontinued. The paper is concluded with four illustrated cases to emphasize a number of these conclusions.

[B. D. W.]

THE OPERATIVE TREATMENT AND PATHOLOGY OF ACUTE EPIDIDYMITIS.

CUNNINGHAM AND COOK (*Journal of Urology*, Feb., 1922) declare that the clinical conclusions are that epididymotomy is a rational procedure for active, acute, and recurrent acute and subacute epididymitis, being the application of the general surgical principles of drainage to an inflamed structure with the same beneficial results here as in other structures.

The operation is, however, an attack on but one organ in a series of organs infected, and the inflammatory process in the seminal vesicle and prostate still remains in some degree and requires subsequent treatment. It is believed, moreover, that drainage of the epididymis has a beneficial influence on the inflammatory process in these organs, as they are freed from the influence of the products of inflammation drained by them from the infected epididymis, and in consequence of this the duration of treatment of the seminal vesicle, prostate, and urethra is materially lessened by the operation of epididymotomy. The immediate effect of the operation is a rapid relief of pain and the high temperature and leucocytosis drop rapidly to normal, and the individual is able to return to his duties about five times as soon following the operation as when treated by non-operative methods. Recurrent epididymitis following epididymotomy is rare, and sterility is less often a permanent defect.

The pathology demonstrates a rapid destructive process in the tubules and intratubular tissue, ending with permanent defect in these tubules, and argues in favor of supplying surgical drainage early if the process is shown clinically severe; for upon the early termination of the destructive inflammatory process will depend the prevention of permanent impairment of the function of the ductus epididymis.

There are two microphotographs illustrating the pathology of this condition.

[B. D. W.]

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THE LOCAL ABRAMS REPRESENTATIVE.

A FEW weeks ago a young man applied to Dr. Philip A. E. Sheppard for treatment. According to papers submitted to the Board of Registration in Medicine, Dr. Sheppard drew a drop of blood from this patient and forwarded the specimen to Dr. Abrams, in California, for a diagnosis. The report from Abrams set forth that the patient had a certain number of ohms of syphilis and another number of ohms of sarcoma. At a hearing conducted by the Board of Registration the patient testified that Dr. Sheppard spoke of the cost of treatment to him by the Abrams method as five hundred to a thousand dollars. At a subsequent hearing the use of the instruments employed for diagnostic purposes was explained by Dr. Sheppard. It was claimed that some sort of activity, spoken of as radio activity, was set up by a machine which was grounded to a water pipe or radiator, and by the use of another person the current (if there is any) passes through a living subject and also through the drop of the blood of the patient; and the resistance to the current, as shown by ohms, registered on a dial, produces dullness over certain abdominal areas of the healthy person employed to develop the reaction; one area for cancer, another for syphilis,

others for sarcoma, tuberculosis, streptococcic infections, and so on. These areas are determined by percussion.

Dr. Sheppard testified that by this method it was shown that he himself had had sarcoma of the gall-bladder, and the application of the proper treatment relieved him of his symptoms and he is now free from discomfort. His claims of efficacy by means of this treatment and the accuracy of diagnosis secured by this method were endorsed by Dr. Hilfer of New York and New Jersey, who claimed to have been cured of "acquired syphilis" by this method. He took pains to explain that the disease was acquired in childhood through a scratch.

The Board of Registration in Medicine conducted the hearing for the purpose of ascertaining whether the acts of Dr. Sheppard constituted violation of Section 61 of Chapter 112 of the General Laws of Massachusetts, in which section the Board is given authority to suspend or revoke the registration of a physician guilty of deceit, malpractice or gross misconduct in the practice of medicine. Eminent professors connected with technical and medical schools testified that the description of the apparatus and the evidence claimed to have been elicited by its use did not conform to any accepted knowledge on these subjects; the physicians especially stating that they had not been convinced of any valuable information imparted by the apparatus or methods employed.

Dr. Sheppard was ably defended by Mr. Thomas W. Proctor, who emphasized the lack of experience in the use of the instruments or methods by the scientists and advanced the argument that since none of them had actually used this method they could not assume to know whether it was of value or not. At one stage of the proceedings the secretary of the Board explained to Mr. Proctor that the Board was in duty bound to try to determine the ability of Dr. Sheppard to practise medicine by this or any method, and Mr. Proctor readily asserted that if that was the object of the inquiry it was of no use for him to defend his client. There seemed to be passing through the mind of the attorney serious doubt as to the usefulness of this fantastic method, as well as the quality of professional service rendered, but his argument was based on the contention that if Dr. Sheppard was honest in his belief and tried through this method to help his patient he was blameless.

Like most people who adopt unrecognized and unusual methods of medical treatment, Dr. Sheppard is a ready and enthusiastic speaker and would be very likely to secure patients from those who are impressed by spectacular exhibitions.

The decision of the Board will be rendered at a later date.

HOW SHALL WE DEAL WITH OUR SPECIALISTS?

THE Council on Medical Education of the American Medical Association has recommended the reorganization of the undergraduate curricula in medical schools with the purpose of educating larger numbers of general practitioners and not so many specialists. Another recommendation is that the states should require evidence of special training before permitting a physician to hold himself out to the public as a specialist.

The first has been a favorite theme for discussion for several years. It is a popular subject because smaller communities need more physicians, and among physicians the general practitioner has found that the specialist is getting much work formerly done by the family attendant, and in some instances the latter claims to have reason to feel or suspect that the specialists are using unfair methods in efforts to secure and keep patients. The wise, well-equipped family doctor has been rather effusively praised and the specialist more or less gently criticised.

The subject is broader and deeper than appears on the surface. Beginning with the medical schools—ought we to criticise their methods under existing conditions? The managing boards of Class A schools are ambitious to meet or even exceed the standards of the Council on Medical Education, both in the premedical requirements and in the four years of medical study. They select eminent men for professors and teachers. Each member of the faculty of a Class A school has attained his position through industrious application of his well-trained intellect. He makes his department attractive to a certain type of student. Those who are inspired by him and find his subject interesting naturally enjoy the pursuit of knowledge under his instruction. Those who thus react naturally develop into specialists in this particular field. So on through the various departments of the school. Having accepted only high grade young men, why should not most of these students enjoy intensive study along the lines particularly attractive to each, after having covered the fundamental branches?

Some students naturally devote only a required amount of time and energy to subjects of minor interest. It is far easier to concentrate on one subject or a coördinate group than to try to absorb all that is taught in all the departments, so that unless the medical school definitely restricts intensive and somewhat exclusive study, specialism is the natural resource for the well-endowed and trained student. The large number of specialists demonstrate this tendency of the schools and the inclination of those seeking instruction.

If methods of instruction are to be changed

there must be reorganization of the faculties, and each of the major departments of general medicine, surgery, obstetrics and pathology will have to be placed under the control of a group of teachers consisting of, first, a good organizer, and second, associates who can work harmoniously. The eminent operator or investigator might have to occupy a less prominent position on the faculty than is the custom now in the undergraduate field and do more of his teaching in post-graduate work, dealing with those men who are willing and able to devote years to detail study and practice as assistants.

The other question, dealing with state graduation of practitioners, is theoretically alluring, but there is probably little likelihood of the adoption of any plan involving state endorsement of the superman in medicine. State policies deal with standards for average proficiency rather than expert knowledge, and the adoption of state recognition and discrimination relating to experts would probably be restricted to those few states in which medical influence is greater than has been evident in the majority.

The classification of physicians could be done much better by the profession and could be brought about much easier than through legislative action. There may be fundamental objections even to this plan because the task would be difficult and those in charge of the work would be subjected to severe criticism. Even now, among groups of men working in the same field, there are wide differences of opinion relating to the qualifications of more or less prominent specialists. Theoretically, the American College of Surgeons should have placed its stamp of approval only on those who could qualify as expert surgeons. Whether the original ambitions of this college have been strictly adhered to is debatable, and yet the result may be fairly representative of human ability to measure up to ideals promulgated by pioneer leaders.

For the present, the publication of the membership of the various societies restricted to specialists would be a step in the right direction and would help the public and the general practitioner in avoiding the danger involved in association with the pretenders in medicine.

The unqualified specialist should be prevented from fooling the public, but even state societies are disinclined to attack him unless his behavior is extremely unsavory; and until the profession is disposed to enter upon a campaign of thorough house cleaning, the shrewd, unscrupulous and poorly equipped claimant for recognition as a specialist will furnish a subject for discussion, but concrete action may be long deferred.

If anyone can formulate plans which, if put in operation, will provide larger numbers of well-equipped general practitioners and only the requisite number of reliable specialists, his

name should occupy a prominent place in the Hall of Fame.

In all probability, individual tastes and ambitions, together with economic conditions, will be the large factors in determining the relative number of general practitioners and specialists. Undoubtedly medical schools could bring about an increase in the number of general practitioners by adopting changes which would oblige students to devote more time to the general subjects and postpone special courses of study to post-graduate work.

NEWS ITEMS.

A DEMONSTRATION clinical meeting was held at the Beverly Hospital, Thursday, June 1, at 4 P. M. Interesting cases were shown and discussion followed. Physicians and nurses were urged to attend.

DEATH RATE IN BOSTON.—During the week ending May 27, 1922, the number of deaths reported was 173, against 213 last year, with a rate of 11.81. There were 18 deaths under one year of age, against 30 last year. The number of cases of principal reportable diseases were: Diphtheria, 51; scarlet fever, 46; measles, 201; whooping cough, 21; tuberculosis, 56. Included in the above were the following cases of non-residents: Diphtheria, 3; scarlet fever, 9; tuberculosis 2. Total deaths from these diseases were: Diphtheria 2; scarlet fever, 2; measles, 1; tuberculosis, 11. Included in the above was the following case of a non-resident: Scarlet fever, 1.

THE ANNUAL DINNER.—Every member of the society is urged to mail the card stating whether or not he is coming to the annual dinner on June 14. If a group of men wish to sit together a representative must apply either at the information booth at the Harvard Medical School or the booth at the Copley-Plaza on Wednesday, June 14, before 6:30 P. M. The speakers at the dinner will be Governor Channing Cox, the Rev. Willard A. Sperry, Professor Samuel Williston and District Attorney T. J. O'Brien.

GOVERNOR GENERAL LEONARD WOOD has started an extensive campaign to improve health conditions in the Philippines. Circulars setting forth the causes of various diseases and methods of stamping them out, have been posted throughout the islands. Four necessities for better living conditions in the Philippines mentioned by Governor General Wood are: More hospitals; more dispensaries; better distribution of medicines; additional nurses.—*The Nation's Health.*

Miscellany.

SECOND GROUP MEETING OF THE NEW ENGLAND SECTION, AMERICAN COLLEGE OF SURGEONS, MAY 15 AND 16, 1922, PORTLAND, ME.

THESE exercises were of great interest and were attended by many surgeons from the New England states. The executive committee, under Dr. E. G. Abbott, chairman, with Dr. W. H. Bradford and Dr. S. J. Beach, successfully arranged all details.

The demonstrations at the Maine General Hospital, Children's Hospital, City Hospital, the Eye and Ear Infirmary and Queen's Hospital covered a large range of surgical problems, and there was evidence of high-grade surgery in all of these institutions.

The social features of the luncheons were enjoyable.

The general policies of the college were set forth in the Hospital Conference. Dr. Franklin H. Martin, director-general, explained the minimum standards and gave the history of the survey: In 1918, 692 hospitals were examined and 89 met the required minimum standard. In 1919, 198 were added to the list; in 1920, 407 more were admitted, and in 1921, 579 more were approved.

The only step taken to secure adoption of minimum standards has been the publication of the accredited list.

The Eastern Maine General Hospital is the only one in Maine on the approved list.

During the present year all hospitals of 50 beds or over are to be visited and a report will be made in October.

Even after approval all hospitals will be inspected each year to determine whether standards are maintained. Last year \$64,000 was spent in the survey; \$25,000 was given to the college for this purpose.

Dr. T. E. Allen explained the methods employed in getting information. All surveyors are doctors and have the professional viewpoint. Each one has been an interne in a high-grade hospital, but not from the same hospital. He likened a hospital to an automobile, with the staff as the motive power. The staff must meet at least once a month and must work harmoniously. No "knocking" should be allowed. He regarded the laboratory as the carburetor. The question to be asked is whether the laboratory is used efficiently, for size does not determine that question. The hospital records may be spoken of as the mileage of the hospital and prove up the quality of the work done. Records do not make the hospital, but are evidences of the character of it. A plea

was made for a welcoming hand to the inspector, for he will be generous and helpful.

Dr. George H. Stone, superintendent of the Eastern Maine General Hospital, Bangor, spoke of the purpose of a hospital, which is to provide the patient with the best possible treatment, and people are realizing that a hospital which can meet the minimum standard is the place where one will be able to secure the best results. He outlined three beneficial results used: First, better records; second, better laboratory work, with accurate records, and third, a more competent staff. Each one of these divisions was spoken of in some detail. From the superintendent's standpoint the efficiency of a hospital is based on the following conditions:

1. Harmony in the hospital family.
2. Better training schools for nurses.
3. Better trained internes.
4. Quicker turnover of patients.
5. Quicker and better response from appeals for funds.
6. Better satisfied patients on discharge.

Dr. John O. Polak of Brooklyn, N. Y., spoke of the fear entertained by surgeons that the standardization scheme would curtail their individuality, but this has not been the result. Hospitals are the places where scientific medicine is applied, internes and nurses are trained and *surgeons are made*. The importance of accurate diagnoses was emphasized and based on three considerations:

1. Suggestive symptoms; *i. e.*, history.
2. Confirmation by characteristic symptoms.
3. Laboratory findings.

The importance of staff conferences is beyond general comprehension, because each man's work is subjected to frank criticism and should mean that a man with an abnormally high mortality in his work should be asked to resign.

The minimum standard stimulates every worker in the hospital to do his best, and creates public confidence.

Dr. M. T. MacEachern of Ottawa, Canada, told the conference that the same methods are being applied in Canada as are being used in the United States; both the hospitals and the general public are showing great interest in the minimum standard plan. Even prospective nurses are asking the standing of hospitals before entering training schools. Speaking of the auditing and checking of the usual routine work in a hospital, Dr. MacEachern asked why the checking of records and care of patients should not be as searching as a review of business methods. He said that since the minimum standard had been in force in Canada the number of operations has been reduced about 10 per cent. and the average stay in hospitals has been reduced from 15 to 13.8 days. The

people are asking the reason why, if a hospital is not in the accredited list.

The Rev. Father Moulinier, president of the Catholic Hospital Association, spoke of the great power and influence of the American College of Surgeons and affirmed that the scientific soul of standardization is the scientific soul of the medical profession. Doctors, nurses and trustees of hospitals must be organized and must work together. Speaking especially of the necessity of keeping records, he predicted that the medical growth of the next 25 years would depend largely on the quality of records kept.

Mr. Jolly, superintendent of the Baptist Sanitarium, Houston, Texas, spoke of the critical attitude of the public and the expectation of progress by the laity, for coincident with the general progress of human affairs, hospitals must keep step with all other evidences of better service.

The public meeting was well attended. The Governor of Maine, the Hon. P. P. Baxter, gave the address of welcome, and the various subjects relating to hospital efficiency were presented to the public in very much the same manner as in the program at Springfield last year.

Taken all in all, the meetings were of great interest, and it seemed to be the consensus of opinion that a great deal had been accomplished.

THE INSTITUTE FOR SCIENTIFIC ASSISTANCE.

THIS organization was founded in Vienna in 1917 as an aid to those who require assistance in covering the literature relating to a given subject. Its activities are not confined to the compilation of medical bibliographies, but include certain subjects in the fields of engineering, physics, chemistry and sociology. The bibliographies are not made to order but are issued from time to time and concern certain rather large divisions of medicine. For example, Röntgen literature from 1914 to 1917 is compiled in one volume. Some bibliographies contain titles only, others consist of abstracts. The prices range from three to twenty-five dollars. A catalog may be obtained from the Institut für Wissenschaftliche Hilfsarbeit, G. m. b. H. Wien.

AMERICAN RELIEF ADMINISTRATION.

Moscow.—Dr. Edmund A. Walsh, regent of the School of Foreign Service, Georgetown University, and prominent lecturer, who arrived here recently to formulate a plan for the disbursement of the National Catholic Welfare

Council funds along relief lines adopted by the American Relief Administration, has returned from the Samara famine district, where he spent several days.

"One of the things that has impressed me most since arriving in Russia," Dr. Walsh declared, "is the extraordinary organization built up by the American Relief Administration under Colonel William N. Haskell. The feeding of 7,000,000 people in a land as large as Russia is probably the most tremendous relief program in the history of the world. The activities of this same organization in Belgium, as far reaching as they were, could all be included in, say, the Samara district alone."

Dr. Walsh's plan in brief is to distribute food packages, purchased in large quantities through the Russian Food-Remittance Department of the American Relief Administration at New York. He has found that there is much need for this kind of relief among professional men and women and the intelligence upon whom Russia must eventually depend for its existence.

"At the University of Samara, for example," he declared, "I found 200 professors working under most distressing conditions. Living on a meagre allowance of black flour and herring, they have kept open the university during the trying years following the revolution, although they have had to spend a large part of the time they might have been devoting to research work in outside employment in order to earn enough food to keep their families alive. Many of them are ill, others in a weakened condition, physically, as a result of overwork and undernourishment. I am making an appeal to the members of our profession in America to help such men as these."

Dr. Walsh found at Samara the wife of the famous Russian diagnostician, Bode, living with a family of five in two small and poorly lighted rooms. Madame Bode, who once held an enviable position as the wife of one of Europe's most noted specialists, he declared, was not only reduced to poverty but was on the verge of starvation. An oil painting of her husband, who died about a year ago, a few old pieces of furniture and a few pounds of flour were all that she possessed. Dr. Walsh arranged to have a food package delivered to her the night before Easter Sunday.

"It is this class of people," he said, "which suffers most.

"Before I left Moscow a doctor came to see me who was in a deplorable plight. The clothes he wore were shabby and had been mended many times. His shoes were entirely worn out. I gave him a food package, telling him at the same time that of course he was not to sell any of the contents. There is absolutely no check on these matters, but these people are on their honor, so to speak. The next

morning he called me up and said that as it had turned so cold during the night he was unable to leave his room without shoes and therefore asked permission to sell a few cans of milk in order to buy a pair of shoes."

Dr. Walsh said that among the people who had called on him in Moscow was the daughter of Mendeleeff, discoverer of the law for arriving at atomic weights of the basic elements, and whose chart hangs in every chemistry classroom in the world. Although she was once wealthy she is now in need of food in order to keep alive.

CONGRESS OF THE HISTORY OF MEDICINE.

THE Third International Congress of the History of Medicine will be held in London, July 17 to 22, 1922.

President of honor, Sir Norman Moore, Bt., M.D.; vice-presidents of honor, Sir D'Arcy Power, K.B.E., F.R.C.S., Dr. Tricot-Royer (Antwerp), Professor Jeanselme (Paris), Professor Ménétrier (Paris). President of the Congress, Charles Singer, M.D., D.Litt.; treasurer, W. G. Spencer, O.B.E., M.S.; general secretary, J. D. Rolleston, M.D.

The opening session will be at the Royal Society of Medicine, to be followed by receptions, banquets, visits to hospitals, etc.

Visiting ladies will be especially entertained by a committee of ladies.

Intending members are requested to communicate with the general secretary, Dr. J. G. Rolleston, 21 Alexandra Mansion, King's Road, S. W. 3. or the treasurer, Mr. W. G. Spencer, O.B.E., 2 Portland Place, London, W. 1.

GOVERNMENT NEEDS AIDES IN REHABILITATION OF DISABLED VETERANS.

THE United States Civil Service Commission states that there is urgent need in hospitals of the United States Public Health Service and establishments of the United States Veterans' Bureau for reconstruction aides in physiotherapy and occupational therapy in connection with the rehabilitation of disabled soldiers, sailors and marines.

The commission will receive applications for these positions until further notice. Applicants are not required to report for a written examination, but are rated upon the subjects of education, training, experience, and physical ability.

Full information concerning salaries and requirements, and application blanks, may be secured from the United States Civil Service Commission, Washington, D. C., or the board

of civil service examiners at the postoffice or custom house in any city.

Dietitians are also needed in these hospitals. Application blanks may also be secured from the commission.

PHYSICIANS WHO PERMIT PATIENTS TO VIOLATE QUARANTINE.

The Weekly Bulletin of the Department of Health of New York City states that heavy fines have been imposed upon several physicians who have permitted patients suffering from an acute communicable disease to leave their premises and in so doing violate quarantine before authorization has been given by the Department of Health.

The excuse of ignorance on the part of the accused physicians has not been accepted, for it is the duty of physicians to be familiar with sanitary regulations just as much as to know how to diagnose and treat diseases.

A careless or accommodating physician may be responsible for the spread of disease and perhaps death. Physicians should be made to feel that they are important factors in public health administration.

NOTES RELATING TO THE AMERICAN MEDICAL ASSOCIATION MEETING.

OFFICERS elected: President, Ray Lyman Wilbur, M.D., president Stanford University, California; speaker of the House of Delegates, F. C. Warnshuis, M.D., Grand Rapids, Mich.; vice-speaker of the House of Delegates, L. Rock Sleyster, M.D., Wauwatosa, Wis. The other positions were filled by reelection of officers of the preceding year.

A definition of *state medicine* was adopted, which will appear in a report of the transactions, and a resolution providing for the publication of a lay medical journal was adopted.

The sentiment favorable to the development of greater numbers of well-trained general practitioners was quite evident, and there seemed to be a strong feeling in favor of encouraging the smaller well-managed medical schools. Some expression was given to the idea that the teaching machinery in medical schools was not altogether in proper form because of overlapping and underemphasis given to some specialties.

Dr. Mongan raised the question as to the justice of giving the sections of the scientific assemblies the right to send representatives to the House of Delegates, thereby conferring on one person, in some instances, the privilege of a dual vote. This objection also applies to the delegates from the medical departments of the army and navy and Public Health Service. He

filed notice of a proposed change in the constitution covering these points, which has to lie over one year.

JOHNS HOPKINS SCHOOL OF HYGIENE AND PUBLIC HEALTH.

IN October, 1918, there was opened a School of Hygiene and Public Health in connection with Johns Hopkins University. This school was made possible by the coöperation of the Rockefeller Foundation.

"The main objects of the school are to establish courses for the training of qualified persons for public health work, to promote investigative work in hygiene and preventive medicine and provide opportunities for the training of investigators in these subjects, and to develop adequate means for the dissemination of sound hygienic knowledge. Special and mutual advantages arise from the close relationship between the school and the International Health Board of the Rockefeller Foundation, particularly in field work and in the opportunities for investigation and training in tropical medicine and the control of special diseases. As outlined at present the work of the school is organized under the following divisions: A department of bacteriology, serology and immunology; a department of medical zoology; a department of epidemiology and public health administration; a department of biometry and vital statistics; a department of chemical hygiene; a department of physiological hygiene; a department of sanitary engineering. Provision is made for instruction in personal hygiene, mental and social hygiene, and sanitary law. Facilities for field work are provided through coöperation with the state and city departments of health and also by means of a county health unit located at Hagerstown, Washington County. This unit is supported by four public health agencies: The State Department of Health, the United States Public Health Service, the International Health Board and the School of Hygiene and Public Health. Students spend part of their time in residence at Hagerstown to become acquainted with the organization and activities of this unit."

During the year 1921-22, 141 students were enrolled.

MATERNITY nursing by visiting public health nurses has reduced deaths of mothers 60 per cent., the number of stillbirths 70 per cent., and the number of infants dying under one month of age 50 per cent., according to Dr. Louis I. Dublin in the December *Public Health Nurse*.

The Massachusetts Medical Society.

MEMBERSHIP CHANGES FOR THE MONTH OF MAY, 1922.

OFFICIAL LIST (4TH).

Compiled by the Secretary of the Society.

ALPHABETICAL LIST.

Bell, James Francis, Jr., from Boston (Suffolk), to Portland, Oregon, 903 Journal Bldg. (Non-resident.)
 Bolduc, Alfred George, Bayonne, N. J., 847 Avenue C.
 Burt, Clarence Edward, New Bedford, now 544 County St.
 Carleton, Ralph, Springfield, now 10 Temple St.
 Cavanaugh, Thomas Edward, from Holyoke to West Springfield. Office, Springfield, 293 Bridge St.
 Corcoran, George Bartlett, West Springfield, now 84 Park St.
 Cotter, Edward Joseph, Jamaica Plain. Office now Boston, 510 Commonwealth Ave.
 Dillon, William Joseph, Chicopee Falls, now 112 Main St.
 Elkind, Henry Byron, from Worcester to Howard, Rhode Island State Hospital for Mental Diseases.
 Emerson, William R. P., Boston, now 270 Commonwealth Ave.
 Flood, Everett, from Mt. Dora, Florida, to Friendship, Maine.
 Freligh, Claude Adelbert, from Palmer to Springfield, 175 State Street.
 Fryburg, Charles August, Worcester, now 738 Main St.
 Gibbs, Locero Jackson, Chicopee Falls, now 31 Broadway.
 Gilchrist, Bernard Francis, Springfield, 647½ Main St.
 Gilchrist, John Milton, Springfield, now 106 Chestnut St.
 Golden, Ross, from Des Moines, Iowa, to New York City, Presbyterian Hospital, 70th St. and Madison Ave.
 Gurjian, Leon Kevork, Worcester, now 204 Main St.
 Hanley, John Joseph, died at Southeroft, Motherwell, Scotland, July 26, 1921, on his 54th birthday.
 Hartwell, John Bryant, Colorado Springs, Colo., now 1211 North Tejon St.
 Hill, Lewis Webb, Boston, now 483 Beacon St.
 Holmes, Colin McLean, Springfield, now 310 Main St.
 Hussey, Earle Edward, Fall River, now 245 Cherry St.
 Kilburn, Ira Nelson, Holyoke. Office, Springfield, 6 Maple St.
 Kurth, Harold Richard, from Lawrence to Methuen. Office, Lawrence, 477 Essex St.
 Lane, Clarence Guy, Woburn. Office, Boston, 421 Marlborough St.
 Little, Abby Noyes, from Newburyport (Essex North), to Turkey in Asia, Diarbekir, Near East Relief (Non-resident).
 Lougee, Frank Taylor, from Newton (Middlesex South), to Lynn (Essex South), 11 Atlantic St.
 Lovell, Martha Eleanor, from Brookline (Norfolk), to Winthrop, 233 Woodside Ave. (Suffolk).
 Lowney, Dennis Joseph, New Bedford, now 72 Foster St.
 Lynch, Charles Francis, Springfield, now 387 Main St.
 MacMichael, Earle Haggert, Malden, now 77 Summer St.
 Mannix, Louis Edward, Chicopee Falls. Office, Springfield, 293 Bridge St.
 Marev, Henry Orlando, Jr., died at Newton, May 29, 1922, aged 50.
 Moriarty, Patrick Maurice, Chicopee, now 51 Center St.

O'Hara, Francis James, North Adams, now 57 Main St.
 Osgood, George Edward, from St. Petersburg, Fla., to Wells, Maine.
 Owen, Albert Simpson, Framingham, now 60 Proctor St.
 Pattrell, Arthur Ellis, from North Grafton (Worcester), to Roxbury (Norfolk), 74 Fenwood Road.
 Peck, Martin William, from Roxbury (Norfolk), to Boston (Suffolk), 503 Beacon St.
 Penhallow, Dunlap Pearce, New York City, U. S. P. H. S., 23 West 43d St.
 Petty, John Anderson, Brockton, now 63 Main St.
 Praino, Gaetano, from South Boston to Boston 11, 273 Broadway.
 1913) Albert, Lionel Louis, Central Falls, R. I., 62
 1922) Pacific St.
 Readmitted by Censors, May 4, 1922.
 Pratt, Emily Adelaide, New York, now St. George, Staten Island, 348 St. Mark's Place.
 Prenz, Joseph, Worcester. Office, Boston, 536 Commonwealth Ave.
 Quinn, James Henry, Springfield, now 387 Main St.
 Rand, John William, Amesbury now 110 Main St.
 Remick, Sumner Haven, change from Remick.
 Rood, Adolphus Duncan, Springfield, now 40 High St.
 Shadman, Alonzo Jay, Jamaica Plain, now 218 South St.
 Sprague, Russell Bradford, from Foxborough (Norfolk), to Boston (Suffolk), 520 Commonwealth Avenue. (Action of Council June 9, 1914.)
 Thayer, Eugene, Roxbury, now 2683 Washington St.
 Tigh, Frederick, Newburyport, now 124 High St.
 1910) Toppan, Albert Brookings, Watertown, 293
 1922) Mt. Auburn St.
 Readmitted by Censors, May 4, 1922.
 Verde, Luigi P., from Cambridge (Middlesex South), to Dorchester (Norfolk). Office, Boston, 372 Hanover St.

ADDRESSES WANTED

Azadian, David George.
 Bardwell, Frederick Albert.
 Gervais, Harriet Marion.
 Lawlor, John Charles.
 McClintock, Elsie.

Changes of address should be sent to the Secretary, Dr. Walter L. Burrage, 42 Eliot Street, Jamaica Plain 30.

Obituaries.

HENRY ORLANDO MARCY, JR., M.D.

DR. MARCY died at his home in Newton, following an illness of several weeks, May 29, 1922, at the age of 50. He was born in Cambridge, where his father, Dr. Henry O. Marcy, had lived and practised for many years, on July 2, 1871, his mother being Sarah Wendell Marcy.

After attending Boston Latin School, Dr. Marcy was graduated from Harvard College in 1893 and from Harvard Medical School in 1897, then serving as house surgeon at the Roosevelt Hospital, New York City, for two years.

On his return to Boston he was associated with his father, both at an office on Common-

wealth avenue and at the private hospital in Cambridge. He married Miss Eleanor Nichols of Newton, who survives him as well as a son and a daughter.

Among his memberships he numbered the Massachusetts Medical Society, the American Medical Association, the American Academy of Medicine, Roosevelt Hospital Alumni Association, Boston Society of Medical Sciences and the Harvard Medical Alumni Association.

JOHN ALLAN WYETH, M.D.

DR. JOHN A. WYETH, who died of heart disease in New York on May 28, 1922, in his 78th year, was one of that band of Southerners who came to New York to make a high reputation in medicine. We have only to mention J. Marion Sims, Thomas Addis Emmett, Nathan Bozeman and W. M. Polk to recall some of the great ones.

Dr. Wyeth's chief contribution to medicine was the founding of the first post-graduate medical school in the United States, the New York Polyclinic Medical School and Hospital, which had its beginning in 1882. Dr. Wyeth was professor of surgery and president of the faculty, in the school he had organized, for the rest of his life.

The son of Judge Louis and Euphemia Allan Wyeth, he was born in Marshall County, Alabama, May 26, 1845. He attended the La Grange Military Academy and entered the service of the Confederate States as a private. For 15 months he was a prisoner at Camp Morton, Indiana; for much of the war he was attached to Russell's Fourth Alabama Cavalry. Beginning the study of medicine in 1867, he took his M.D. from the University of Louisville in 1869, the *ad eundem* degree of M.D. being conferred on him by Bellevue Hospital Medical College, New York, in 1873. Later degrees given him were LL.D., University of Alabama, 1902, and the same degree from the University of Maryland, 1909.

After serving as surgeon to a railway construction company in Arkansas he settled in New York in October, 1872, and started practice, becoming assistant demonstrator of anatomy at Bellevue and in 1880 prosecutor to the chair of anatomy and surgery there.

In an interview some time ago Dr. Wyeth said: "When I studied in a hospital my position was as an interne. And only about 10 per cent. of college graduates could secure such positions. That left 90 per cent. of them still theorists—and a theorist is like a man with only one leg. I saw these men blundering along, gathering their knowledge over the bodies of their failures, their dead patients. And I decided that such a thing was a blot

on our civilization. I began to dream of the polyclinic. There wasn't such a thing in America. I went to Europe. I studied in Vienna, Berlin, London, Paris—and what I saw convinced me that conditions in New York were such as to warrant a post-graduate school. I looked on myself as the average medical man. What I needed others needed, and so, after I had established myself in practice, I started a post-graduate school. It proved to be impractical to give both a college course and a clinical course, so finally we cut out the college course and confined ourselves to a two-year course in the clinic. The idea of a clinic for medical graduates naturally embodied the ownership of a hospital. Then came the question, Where? . . .

"Environment doesn't make a hospital. It's the man who's behind it. The Mayo brothers—I know them both well, and I knew their father before them—are extraordinary men, fine, lovable characters and great surgeons. It is the Mayo brothers who have made their hospital, and not the fact that it is located in Rochester, Minn. A hospital in New York City could be more efficient than a hospital in Rochester, because there were greater facilities for establishing and maintaining a hospital in New York. But it all depends on the personality at the head of it."

Dr. Wyeth's first wife, who died in 1915, was the daughter of the famous Southern gynecologist, J. Marion Sims; his second, Miss Marguerite Chalifoux, was the dietitian at the Polyclinic, and the wedding took place there when Dr. Wyeth was interned with a broken ankle.

He was president of the Southern Society and belonged to the Union League Club. Among the other offices of trust and honor he held were: President of the New York Pathological Society, 1885-6; of the New York State Medical Association, 1901; American Medical Association, 1902; New York Academy of Medicine, 1907-8.

He was author of "Essays on Surgical Anatomy and Surgery," "Text-Book on Surgery," "Life of General N. B. Forrest," "With Sabre and Scalpel," "The Autobiography of a Soldier and Surgeon," 1914, besides medical, historical and biographical sketches.

SAMUEL FULLER MEMORIAL FUND.

The following subscriptions have been received and are herewith gratefully acknowledged:

1-4. Previously acknowledged	\$20.00
5. Joseph Payson Clark, Boston	5.00
6. Francis Dennis Donoghue, Boston	5.00
Contributions to this fund, in memory of the Pilgrim physician, should be sent to Dr. Robert M. Green, 496 Commonwealth Avenue, Boston.	

The Boston Medical and Surgical Journal

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The Massachusetts Medical Society.

THE ANNUAL DISCOURSE.*

NOTE.—At an adjourned meeting of The Massachusetts Medical Society, held Oct. 3, 1860, it was

Resolved, "That The Massachusetts Medical Society hereby declares that it does not consider itself as having endorsed or censured the opinions in former published Annual Discourses, nor will it hold itself responsible for any opinions or sentiments advanced in any future similar discourses."

Resolved, "That the Committee on Publications be directed to print a statement to that effect at the commencement of each Annual Discourse which may hereafter be published."

THE INTERNATIONAL MIND IN MEDICINE.

BY KENDALL EMERSON, M.D., WORCESTER, MASS.

GARRISON'S account of the life of Hippocrates informs us that he was born at Cos, studied at Athens, and spent much time in travel and practice among the cities of Thrace, Thessaly and Macedonia. Not content with the limitation of one environment, he sought the great centers of learning and civilization in that early epoch, and in the period of the Eighteenth Olympiad such journeyings were the full equivalent of the modern physician's post-graduate work abroad. Hence we may infer that the Father of Medicine himself felt his mind reaching forth for foreign contacts, realizing fully the derivation of the word education, a drawing out of the intellect by the attractive force of other greater intellects.

*Delivered before the Massachusetts Medical Society, June 13, 1922.

The physician is an intelligent traveler, for by his training he is specially fitted to sift the grist that comes to his mental mill and to winnow the good grain from the chaff. Not only is this true of his ability to judge medical matters but of his capacity to appraise other phases of strange civilizations as well. This quality is well exemplified in the writings of such keen observers of men and manners as Dr. David Livingston, Sir Frederick Treves or the inimitable Rabelais of an earlier period.

Formerly it was a tradition that the American medical student must complete his training in the clinics of the Old World. With the amazing improvement in our own educational facilities this worthy tradition no longer maintains. Standards of American medical training have forged ahead until our clinics are becoming world centers replacing those of Vienna and Berlin. A recent letter from an American surgeon studying in Vienna states that he has learned nothing new and that on the whole the local work compares unfavorably with our own in point of thoroughness in preparation and technique in execution. In these undoubted facts there lies a source of self-congratulation, and yet, withal, a menace lest we be led into an attitude of smugness and complacency which may work havoc with our breadth of medical vision and tend to limit rather than expand our mental outlook in dealing with the world-wide subject of health. The great leaders of our profession in America have been the keenest

exponents of the international mind in medicine; their university has been the world; and today we are profiting from the splendid structure which has been built upon the solid foundation of their contact with the medical thought and the medical masters of all countries..

Can we ever forget that it was the inspiration of two Boston physicians, received during a period of travel and study in the British Isles, which led to the founding of our Massachusetts General Hospital in this city? And is it possible to estimate the far-reaching effect on hospital development in America which may be traced directly to the inspiration of these two practical idealists, James Jackson and John C. Warren?

Successful achievement brings with it an increased burden of responsibility. It is our duty, therefore, from time to time, to examine our present record, to determine how we are bearing the load and what plans are making to enable us to carry on with success in the years ahead.

From very early times it has been recognized that health is a community, not an individual interest. The Hebraic law lays down rules of public health which indicate keen appreciation of this fact, rules which have been carried out without change for thousands of years, to the inestimable benefit of a very sturdily developed race. Now and again in past centuries such scourges as the plague in London or a virulent inroad of Asiatic cholera have aroused governments to make feeble efforts toward the protection of the community's welfare. Lack of knowledge as to the cause of disease and proper preventive methods brought scant success to these attempts. The embargo furnished the only practical means of protection and had its use when the world was composed of isolated and self-sufficient, small communities. As commerce increased and nations slowly took on relations of economic interdependence a prolonged embargo often carried with it depression in business and even actual suffering from the cutting off of imports. Then came the nineteenth century with its miracles in the field of transportation and communication. The small community no longer existed. Action in the remotest corner of the globe had its reaction throughout the world. Soon ministries of health sprang up in many countries, and the principle of the embargo slowly gave way before the theory of prevention at the source. Then followed the splendid stream of commissions for the study of local disease, sent out by the more advanced governments of the civilized world, the rapid development of health departments in those governments and the early recognition of the essential necessity for co-operation between the health services of all governments throughout the world.

It is beyond the scope of this paper to enter into an historical study of the development of these health services or to detail their international growth. To every physician with an outlook on things beyond the confines of his immediate practice such study will prove one of absorbing interest. Not the least striking phase of public health development is its amazingly rapid extension from the limited field of contagious diseases, and its profound invasion almost daily of new arenas of activity in the sphere of preventive and community medicine. This has been a simultaneous growth in all civilized nations, though it is not presumptuous for us to claim rather more than our fair share in hastening the progress of its development. There are several reasons why this should be the case. For years America has been the annual host of hundreds of thousands of strangers from every country of the globe, whose health immediately became a source of solicitude on our part. When it is realized that probably not over ten per cent. of any nation is highly adapted physically and mentally for pioneer life, it is evident that in the problem of immigration alone our health service encountered a colossal task, particularly when we reflect that our quota doubtless springs chiefly from the other 90 per cent. and that the principle of selection at the source has never been applied. Furthermore, America has possessed the means and the energy for development more fully than less favored nations where overcrowding, poverty and ignorance render progress far more difficult. One finds throughout the countries of Eastern Europe a surprising elaboration of paper plans for serving the public in matters of health and sanitation. One often looks in vain for the practical realization of those plans. In one country under the direction of a most able minister of health, an idealist and a scholar, I found a completely formulated plan for the care of the nation's tubercular patients, including preventoria, instructional classes, clinics, sanatoria and hospitals for the hopelessly advanced cases. Geographically, the country was admirably covered. Yet when an effort was made to see the scheme in action the pathetic fact was brought out too clearly that the fight was being waged on paper only and that far too large an appropriation for that alone was being spent on maintaining a perfectly running central bureau, while practically no assistance reached the unfortunate victims of the disease.

But even such instances as this, of which there are admittedly many in Europe, have their encouraging side. For such elaborate plans give evidence of close familiarity with similar organization in other countries where practical accomplishment has been achieved as well. The medical libraries of these countries

are well stocked with literature embracing the best thought in medical advance throughout the world; the first question always asked the visitor in the days immediately following the war was how best and most quickly to reestablish exchanges with current American publications.

Furthermore, many examples may be cited of extraordinary alertness for foreign contacts among nations often thought of as retarded or reactionary. A case in point was observed in the new Republic of Poland. A few months after the signing of peace I saw on the wall of the new and excellently installed public health laboratory a map of the world, on which were pinned the familiar little colored flags indicating the incidence of epidemics in all countries. Though, through national poverty, the laboratory lacked in many of the humblest details of equipment, the director's mind was already reasserting its international instincts, and one could see at a glance what epidemics were, at the moment, afflicting Singapore, Moscow or Havana. A visit to this same laboratory a year later disclosed amazing progress in the development of the laboratory facilities. The director was at that time manufacturing standard typhoid vaccine on a large scale at a price so many times cheaper than it could be made at the Paris Pasteur Institute that he had captured the international market in Eastern Europe and was shipping vaccine to all the countries from the Baltic to the Black Sea.

In remote Lemberg, a city which we think of as almost a frontier post, Dr. Groer, year before last, organized in his children's hospital the first training school for nurses on the Continent which gives a three-year course of graduated instruction modelled along American lines and turning out a product hitherto unknown in Europe, a nurse comparable in her attainment to those educated in our American training schools. Only by thorough knowledge of the value of the American standard by an open-minded study of our results could this physician have developed the faith to struggle against the reactionary Continental attitude toward the nursing problem. Since that time the presence of so many able American trained nurses in Eastern Europe has vastly aided in allaying prejudice, and at the moment three additional nurses' training schools have been organized there under the direction of American nurses. This is a little known bit of American enterprise in international medicine for which Miss Alice Fitzgerald of the League of Red Cross Societies and Miss Helen Scott Hay of the American Red Cross should receive far more credit than has been their reward up to the present.

In Bucharest, Dr. Minovici, former president of the International Medico-Legal Society and

doyen of the University Medical School, has by a most magnificent effort established a remarkably complete municipal morgue, with autopsy rooms, amphitheatres and medico-legal museum vastly superior to any city plant I have seen in this country or abroad. During the German occupation of Roumania, the Teutonic medical officers were so impressed by the efficiency of this plant that they themselves added several autopsy tables and made it a center of medico-legal scientific research. To be sure, fortune has favored the good doctor in his work, for, if I recollect aright, he told me that there were no less than three deaths per day by criminal violence in the little city of Bucharest, which furnished him ample clinical material.

In 1919 I saw Professor X at work in his physiological laboratory at the University of Tomsk, tucked away in the very heart of devastated and riotous Siberia. Though stripped of most of his apparatus by Bolshevik ruthlessness he showed us much excellent work in progress made possible by cunning improvisation. Among other experiments I recall a dog with gastric fistula from which the Professor was demonstrating and pursuing his researches. It is not necessary to multiply scattered incidents of this nature to demonstrate that one must look beyond the great world famous clinics to realize the extent to which medical knowledge is universal knowledge, and to appreciate the ripeness of the field for spreading still further international contacts.

And now turning to our own record, how far have we kept pace with our duty in this essential development? The answer cannot fail to fill us with a fair measure of satisfaction. It is only necessary to allude to the historic achievements in our fight against malaria or to the conquest of yellow fever through the sacrifice of American martyrs to scientific research. Perhaps through the glory thus honorably won Mr. Rockefeller was largely inspired to make possible further victories. In 1909 he organized and financed a Sanitary Commission to study hookworm disease in our Southern States. Wickliffe Rose, gathering statistics during the preliminary investigation, demonstrated that the malady, far from being localized, was a world problem belting the earth for a strip 30 degrees on either side of the equator and including a region inhabited by upward of a billion people. No sooner had means been devised for the correction of our own small fraction of the problem than ministries of health in many lands sought help and counsel from the "International Health Commission," which grew out of the original Sanitary Commission. And witness into what varied fields of international medicine the Rockefeller Foundation has since penetrated:

the pneumonic plague in China, tuberculosis in France, and lately the establishment of a modern medical school in Peking for the spread through trained native physicians of scientific medical knowledge. Two elements have been essential to the development of this great benefaction: money and men. The former was the more readily secured. The men with breadth of outlook sufficient to visualize the significance to world welfare of this enterprise were hard to find. The commission consists of physicians and business men with international interests and minds trained to look upon the world as a unit and not an aggregation of unrelated parts. But beyond the commissioners still lies the difficulty of getting men of proper training to carry on the details of the work in foreign countries. So a school has been established to care for this need, where physicians receive the necessary executive education and mental broadening to assume the complicated duties involved in prosecuting campaigns in other lands.

The Great War furnished an extraordinary opportunity for the development of the international viewpoint among the rather provincial population of these United States. Medically this development manifested itself in the remarkable expansion of the American Red Cross. It took the mind of an international financier correctly to grasp the significance of the opportunity. When Henry P. Davison took hold of the situation and announced that he needed one hundred million dollars to carry on, the executive council very nearly suffered from syncope. His was the only mind that foresaw the expenditure not of one but of three or four hundred millions were we to perform our international medical obligations in satisfactory fashion.

Save by those intimately concerned with the administration of the American Red Cross during and after the war its actual rôle as an international medical clearing house is scantily appreciated. The practical value of its supplies to the sorely pressed allies before our own entrance into the struggle is known only to those of us who were there to see what added suffering overtakes an army when its surgical dressings run low. Unless there are men in this room who were with the American Red Cross in Italy during the Austrian invasion of 1917, none can realize the tremendous service rendered both morally and materially by our organization and its important share in averting complete disaster along the Piave. And in addition to its practical efficiency the Red Cross seized the opportunity to enter with enthusiasm into research work covering the problems of war medicine, for the alleviation, so far as might be, of the human agony caused by the sinister conditions of modern warfare.

It is characteristic of the greatness of Mr. Davison's mind that he could grasp and read so clearly the true significance of this vast international organization for the promotion of health. To be sure, it was a wartime measure, but did it not have an equally important rôle to play in times of peace? Had not the nations learned that it was time to combine in the eternal conflict against the forces of accident and disease? And so was born the League of Red Cross Societies, a permanent international clearing house for the promotion of the health of the world. The many difficulties that have surrounded this organization in its early development cannot dim the high idealism of its conception nor lessen the great service it has already rendered, though they will slow down its full fruition for a time. The International Committee of Red Cross Societies at Geneva has shown lack of understanding sympathy and coöperation. The League of Nations has established a Department of Health of its own to take on a rôle which was to have been assumed by the League of Red Cross Societies. And so jealousies and the pettinesses of humanity are delaying the development of one of the really great ideas which the war has produced.

The world has progressed but a little way along the road of unselfish combination for the common good. Dr. Januszewski, former Commissioner of Public Health in Poland, in a vigorous article in the *International Journal of Public Health*, deplors the lack of earnest consideration of the problems of health in the Treaty of Versailles. If the war was fought to make men's lot happier why did not the nations appreciate more clearly that international agreements must include specific action calling for world standards of public health? Advanced thinking this, yet when one reflects on the complicated social problems taken up and settled in the Versailles Treaty it is somewhat extraordinary that the paramount problem of the nations' health should be dismissed in one short paragraph, urging the members of the League to make international arrangements to the end of preventing or combating disease. This serves to make it still more significant that it was left to the inspiration of a single broad-minded American to popularize the great principle of international public health through the League of Red Cross Societies.

It is a great temptation to enter more deeply into the details of the slow awakening of international consciousness in the field of medicine, to chant the praises of the medical missionary in his lonely and consecrated effort to spread the gospel of health throughout the world, to sing again the immortal epic of the Canal Zone, or tell the story of that picturesque chain of child welfare clinics organized, by American doctors and nurses, and extending along the

Eastern front from the Baltic to the Aegean Sea in that vast stretch of devastated territory where childhood is having such a desperate struggle for existence.

Greater interest attaches to a survey of practical work which is being accomplished on international lines, but this fact does not belittle the importance of many other elements, such as the international congresses of physicians and surgeons, which serve so effectively as distributing centers of modern medical knowledge. Of such gatherings, perhaps, none has greater significance than the rather prosaic meeting at Paris, in 1920, of a congress to consider medical nomenclature. This was the third meeting of its kind, the first being held in 1900, under the imposing title of "The First International Commission for the Decennial Review of Nosologic Nomenclature." As long ago as 1839 Dr. William Farr, English Registrar General for the Department of Vital Statistics, wrote: "The nomenclature is of as much importance in this department of inquiry as weights and measures in the physical sciences, and should be settled without delay." Dr. Farr's own classification held almost unchanged until Bertillon greatly improved upon it in 1886. But not till 1900 was the importance of an international nomenclature fully recognized and action taken by the representatives of most of the civilized countries of the world.

I cannot refrain from expressing deep satisfaction at the plan of the American College of Surgeons for a visit to our South American neighbors next winter. Too little is known by us of the splendid work being done in other parts of our own hemisphere by men of the widest experience and keenest medical vision.

In this intentionally brief and superficial survey of the growth of international relations in the field of medicine, it cannot fail to be a source of gratification to observe the preëminence of America's leadership. Without vain-glory it is fair to recognize in this fact another evidence that in the soul of America there is a profound yearning to make the world a better place in which to live and to enhance the happiness of its inhabitants. After a close study of the medical situation in foreign lands, however, I am unwilling to admit that we possess an idealism that is unusual or that differs to any marked degree from that of the medical faculty of other countries. The difference lies far more in our capacity for translating that idealism into action. Here, again, our resources are so vastly greater that we must not assume too much credit for the fact. We can afford to try experiments on an expensive scale impossible to the impoverished health departments abroad. The extraordinary coöperation found everywhere on the part of government and doctors alike in all countries where that coöpera-

tion has been sought indicates the breadth of vision that seems to be the natural state of mind toward matters of public health.

In conclusion let us put the question plainly. "Are we as individuals in touch with this vast international movement in medicine?" Last winter I was called hastily to give an address in a thriving town, not far from Boston, in an effort to persuade the taxpayers to continue the salary of a Public Health Nurse. Even the local doctors, it was reported, were lukewarm toward the proposition. Is it not a bit deplorable that in our Old Bay State reactionary tendencies must still be fought when Poland, Czecho-Slovakia, and the New Kingdom of the Yugo-Slavs, are clamoring for more, and still more, Public Health Nurses? Shall we, who have taught these countries to appreciate her value, now repudiate this new Angel of Mercy in our own communities? When we accept the dignified title of Doctor of Medicine we formally accept the *noblesse oblige* which it implies. Our full obligation is discharged only when in matters of the public health we cultivate the broadest vision and take our place as leaders in the effort to teach humanity that man's physical well-being is not an individual matter, but a problem of the Community, the State, the Nation, and the World.

Original Article.

CONGENITAL ANATOMICAL DEFECTS OF THE SPINE AND RIBS.

By JAMES WARREN SEVER, M.D., BOSTON,

[From the Orthopedic Department of the Children's Hospital.]

To those of us who possess a backbone, the following study, or report, may prove of interest, as giving evidence of the fact that such an anatomical asset is subject to great changes, distortions and serious defects in development.

The past few years I have been greatly interested in selecting from several thousand x-ray plates at the Children's Hospital those for study which showed any portion of the spine or sacrum. As a result of this study, I have found a large number of cases which showed anatomical defects of congenital origin of the ribs and vertebrae of a greater or less degree. It is with the idea of putting on record such a large number of most interesting cases that this report is presented.

For purposes of convenience and clearness, the report will be divided as much as possible into the following sections:

I.—Theories of ossification; development and numerical variation;

II.—Defects of the cervical vertebrae including cervical ribs;

III.—Defects of the dorsal vertebrae including rib defects.

IV.—Defects of the lumbar and sacral vertebrae.

V.—Conclusions.

Each section will, as far as possible, review the literature which has a bearing on that special section.

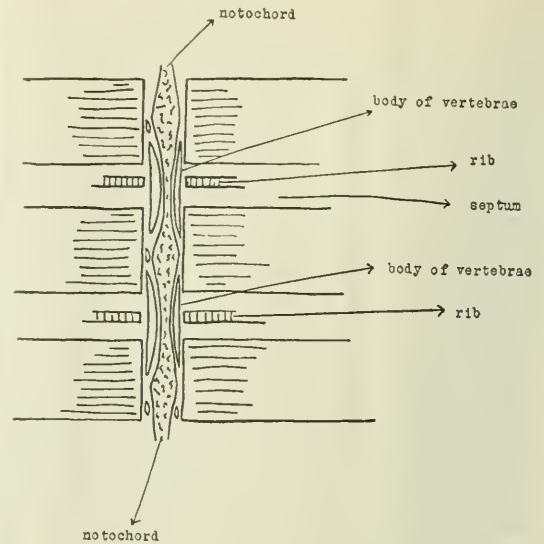
I. THEORIES OF DEVELOPMENT AND OSSIFICATION— MORPHOLOGY OF VERTEBRAE.

To understand the cause of the defects of the vertebrae one should be familiar with the embryological development of the spine, so I will review briefly the embryology of the vertebrae. This embryology includes not only the cervical vertebrae but the dorsal and lumbar as well, and need not be taken up again later in other sections to follow.

At one stage the embryo is an irregular spherule consisting of three layers known as the ectoderm, mesoderm and entoderm. The mesoderm giving origin to the vascular and locomotive system, the skin, and all connective tissues, includes as well the skeleton. In the embryo the ectodermic medullary ridges fold in and come together to complete the neural tube. The notochord, the predecessor of the vertebral column, is then formed by a strip of cells along the median dorsal wall of the entoderm which separates into a tube, and around which the spinal column is developed.

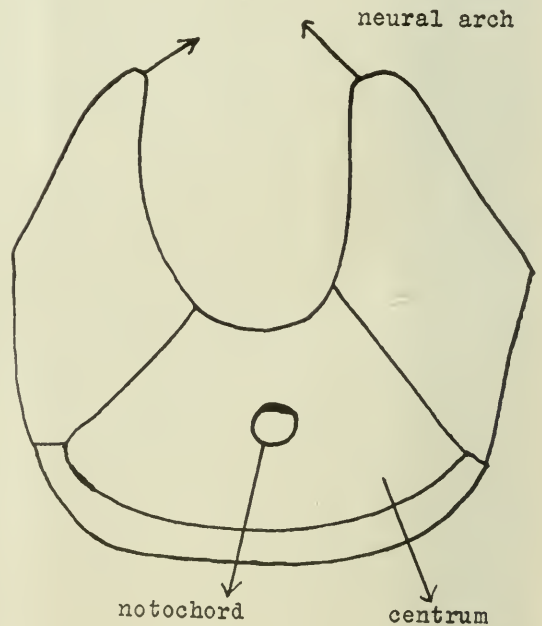
According to Keith,¹² in the second month of foetal life, the notochord begins to disappear. The bodies of the vertebrae and parachordal cartilages form around its sheath and constrict it, and it disappears in the basal cartilage of the skull. The centrum, or body, of each vertebra is formed around the notochord, but only between the centra, where the intervertebral discs are formed, does this primitive structure persist. (See Cut No. 1.)

The epidermis is then completed across the middle line and is soon separated from the cord by the extension between these of the mesodermic tissue which forms the meninges, vertebrae, muscles, and fibrous structures. The notochordal sheath is surrounded by a growth of embryonic tissue, which constricts the notochord at regular intervals, nearly, and later, quite obliterating it (See Cut No. 1 from Keith). The remaining sections of the notochord persist and in later development form the central gelatinous portions of the intervertebral discs. In the surrounding embryonic tissues first the cartilaginous centres appear, and later the bony centers as small groups of cells. Each vertebra is formed of a number of these centers symmetrically arranged on each side. A failure of any one of these centers to appear, or fuse with the others of the group, or an asymmetrical irregular fusion, would result in



Horizontal Section from dorsal aspect showing the relation of vertebrae to the primitive segments.
From Keith - p.59

FIG. 1.

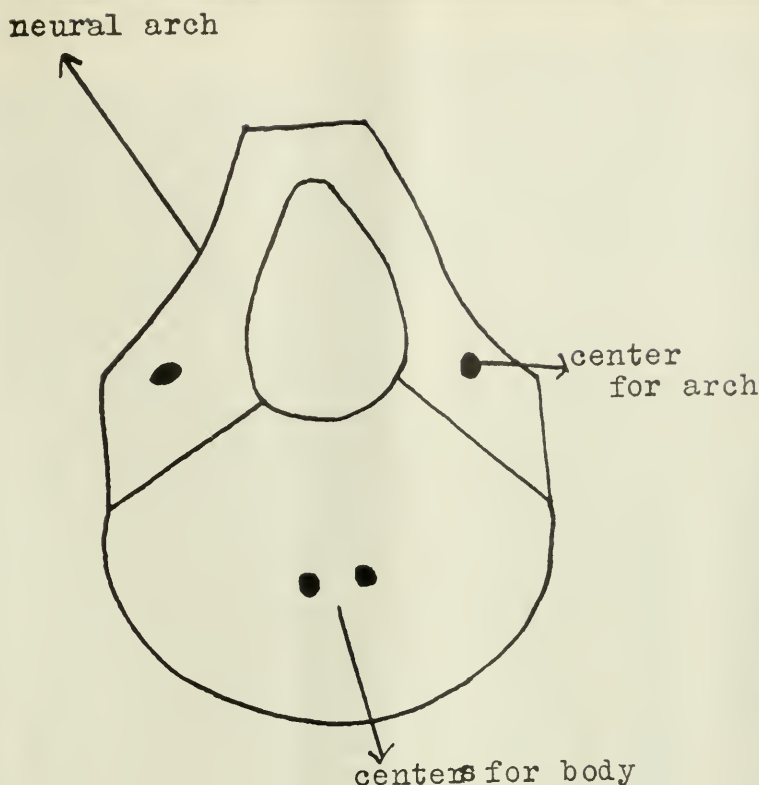


in cartilaginous stage - 6th week

FIG. 2.

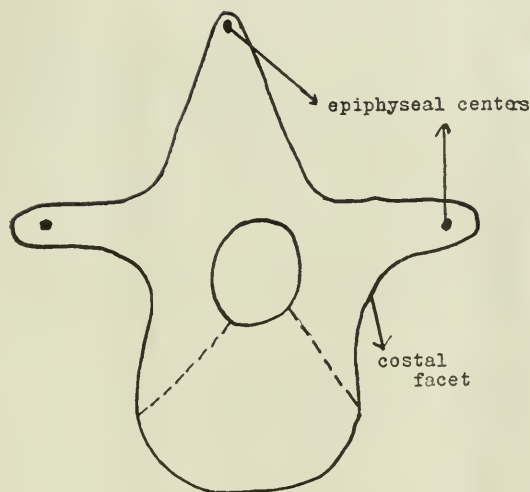
an imperfect bony vertebra (Adams¹). (See Keith cuts Nos. 2, 3 and 4.)

The epidermis always unites if the medullary canal closes, though the mesodermic tissues may present defects. The neural arches of the vertebrae are completed posteriorly by the growing together and fusion in the middle line of the two laminae, each of which is os-



Centers of Ossification - 7th week

FIG. 3.



Secondary Ossific Centers

FIG. 4.

sified from a separate center. Each neural arch has one center of ossification which appears in the eighth week. These neural ossifications fuse behind in the first year. The spinous and transverse processes are formed by outgrowths of cartilage into the septa be-

tween the primitive segments. The ribs are also formed by outgrowths from the vertebrae. In the cervical, lumbar, and sacral regions they fuse with the transverse processes, but remain as separate elements in the dorsal regions. Epiphyseal centers for the ossification of the transverse and spinous processes appear about puberty.

A malunion or absence of the involuting mesodermic elements which form the vertebral arches and spinous processes may be either partial or complete. The defect may be confined to one arch or body, but often involves several and even at different levels. Each lateral half of the vertebra is formed from three primary cartilaginous centers, one for the neural arch, one for the costal process, and one for each half of the centrum. Ossification of the body of the vertebra commences in the middle by two processes which rapidly coalesce, and are formed by the seventh week. Ossification for the laminae commences where the transverse processes afterward project, extending forward toward the body and backward toward the spinous processes. However, if the centers of ossification of the centrum fail to develop we have a defect of the body, and if there is a de-

fect in the ossification of the centers of the laminae we, therefore, get a posterior defect in the spine. The first center of ossification which appears in the lower vertebrae are those which are to form the bodies, while the centers of ossification for the laminae appear later. The fusion of the centers of ossification commences in the upper dorsal region and extends in both directions (See Cut No. 5). The fail-

defect in the spinal canal, called cystic spina bifida.

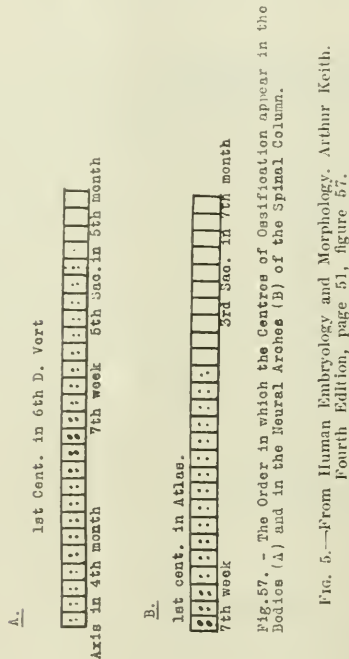
A word should be said here in regard to numerical variations of the vertebrae and ribs. Böhm³ states that variations of the caudal part of the spine may be the expression of a deep developmental disorder, namely, of a faulty attachment of the total lower extremity (pelvis and free extremity) to the trunk, *i.e.*, the spine. An attachment of the pelvis higher than normal results in a shortening; lower than normal, in a lengthening of the presacral spine. As to the origin of the numerical variations of the cranial part of the spine, nothing definite is known. Rosenberg considers the normal differentiation of the spine as typical for the present phylogenetic state of mankind, whereas a variation in the caudal direction means a lower state,—an atavism; and a variation in the cranial direction signifies a step into the future,—an epigenesis.

No definite statement can be made as to whether these defects are cranial or caudal in direction, on account of lack of complete x-rays in many cases. Whether they are atavistic or epigenetic phenomena cannot be stated. Their occurrence is of interest, but clinically they probably have no very great significance from the viewpoint of numerical variations alone.

According to Thomas Dwight⁴, variations occur in two ways: by irregular development of the costal elements at or near the ends of regions of the spine, and by irregular segmentation through which there are more or fewer vertebrae than normal.

Variations of both kinds are variations around a mean. Variations of the costal elements at one end of a region are often associated with variations of an opposite nature of those at the other end, and several regions may be involved and the two sides may vary independently. He discusses Rosenberg's⁵ theory, which he rejects, as does also Bardeen.⁶

Rosenberg considers the middle part of the thoracic region of the spine as the most primitive, and holds that the division of the column into regions (not only in man, but also in other mammals, and, indeed, in other vertebrates) is the work of two chief factors, which simultaneously, and to a certain extent in the same manner, exert an influence on the column in opposite directions. "These factors are both processes of transformation, of which the one, acting on the smaller proximal (*i.e.*, cervical) division of the column, works distally; while the other, affecting the greater distal (*i.e.*, lumbar, sacral, and caudal divisions) works proximally." In other words, the cervical region on the one side and the lumbar on the other tend to absorb into themselves the thoracic vertebrae nearest to them. Such a change at either one end or the other is to be considered progressive,



ure for the centers for the laminae to fuse causes a median posterior defect in the spine, which is most common in the lower portion of the spine which closes last. Minot has pointed out, however, that ossification is merely a supplementary process and produces no important change in the form or anatomical relations of the vertebrae, therefore it would seem that the cause of any congenital defect is created during the evolutionary period of the membrano-cartilaginous stage, or before the end of the fourth embryonic month. A bony defect in general may be looked upon as a failure on the part of the developing organism to supply the proper structure for ossification and bone growth in the proper direction (See Keith Cut No. 3). As has already been pointed out, these defects are more common in the lower segments of the spine than in the upper.

One other theory, advanced by Sharp², should be mentioned which takes the ground that primary mesodermic fault is not the cause of the defective development, but that it is due to an abnormal accumulation of cerebro-spinal fluid in early fetal life, which by exerting pressure prevents the coming together of the mesodermic plates containing the rudimentary laminae, and in this manner producing a

and a change in the opposite direction retrogressive.

Irregular segmentation. Numerical variations are explained also by intercalation and exelation, by which is meant the presence of an additional vertebra, or the absence of a normal one, between two particular vertebrae. This theory differs from that of irregular segmentations as follows: that inter- and exelation imply a correspondence between certain vertebrae at the ends of the series between which the change occurs, while irregular segmentation does not.

The occurrence of eight cervical vertebrae is excessively rare⁷. It is somewhat less uncommon for the thorax to be placed abnormally high. Dwight⁸ also states that Bardeen's investigations controvert Rosenberg's observations, and destroy the hypothesis. Bardeen shows that the original position of the ilium is opposite the anterior part of the lumbar region, and that in development it travels backward instead of forward. Moreover, when it has once joined a vertebra, it never leaves it. All of which is in direct contradiction to Rosenberg's system. The junction of the spine and ilium occurs at about the end of the fifth week. Variation occurs before the sixth week. It is unlikely that there is a precise number of human vertebrae. Fol has shown, and his discovery has been confirmed, that at a very early time the human foetus has thirty-eight vertebrae, some of which, however, do not persist. It is well known that variations in number of vertebrae of the different regions increase tailwards.

Bardeen states that Rosenberg's theories are discounted. It is probable that, as a rule, calcification in the ossification centers of the vertebrae in human embryos begin in embryo about 5 cm. long and three months old. He concludes that after the attachment of the ilium to the vertebral column is made it is not segmentally altered during subsequent development. The thoracic vertebrae are differentiated from the others at this early period of five weeks.

Carroll Smith⁹ has reported a case of absence of the seventh and eighth ribs, and gives a review of some of the recent literature on the subject, but throws no further light on the etiology.

Hooton¹⁰ states in regard to numerical variations the following facts: the first lumbar vertebrae is phylogenetically a dorsal vertebra, since in the typical primate the twentieth is the last rib bearing vertebral segment. Man has suffered the loss of a rib in consequence of the lengthening of the lumbar region required for the assumption of the totally erect posture and bifid form of progression. Hence the first lumbar vertebra in man partakes of the character of a dorsal vertebra and is occasionally

rib-bearing. In regard to the number of pre-sacral vertebrae, twenty-four is by far the most usual number. If the number of pre-sacral vertebrae is decreased, the sacrum generally consists of six vertebrae instead of five, and if the number of pre-sacral vertebrae is increased, compensation also takes place in the sacrum. Variation in the number of lumbar vertebrae is not very common, but there occurred several cases in this series.

II. DEFECTS OF THE CERVICAL VERTEBRAE INCLUDING CERVICAL RIBS.

Defects of the cervical vertebrae are not very uncommon, and the anomaly of cervical or vestigial ribs has been known since the time of Versalius, and many cases reported. Cervical ribs, as a rule, are attached to the transverse process of the seventh cervical vertebra. They may be present on one side only, but the condition is more often bilateral, although never exactly symmetrical. The condition is generally regarded as an atavistic phenomenon.

In this study twenty-two cases of cervical ribs were observed, varying from three-quarters of an inch long to about two inches, as measured in the x-ray plate. Associated with these cervical ribs were nine cases of other vertebral or rib deformities in other portions of the spine. None of the cases had any symptoms referable to the presence of the ribs, but they were discovered only by routine x-ray examinations. Whether any of these children in adult life will develop symptoms from the presence of these abnormal cervical rib developments cannot be foretold, but it would make an interesting study.

Roberts¹¹ has reported a case of cervical ribs in an adult, and Krabbe¹² has reported six cases, the symptoms from pressure beginning at 12 years of age. Goodhart and Taylor¹³ report a case with symptoms dating from the eighth year, but unrecognized as such until the patient was twenty-three.

Embryologically each cervical vertebra has a costal process, which with transverse process forms the costotransverse foramen. In the cervical vertebrae the anterior part of the transverse process represents a costal process, but only in the sixth (sometimes) and the seventh, is the costal process formed by a separate center of ossification. The costal process of the seventh cervical, usually represented by a mere vestige, may develop into a rudimentary or even a fully formed rib which reaches the sternum. The cervical rib results from an abnormal development of this costal process, which process is found in all vertebrae, and in the dorsal vertebrae forms the normal ribs.

The cervical ribs to be included in this report correspond generally to Class II of Gruber's Classification, which is as follows:

Gruber's Classification of Cervical Ribs.

Class I. A slight increase in the costal process, not reaching beyond the transverse process.

Class II. When the rib protrudes beyond the transverse process to a certain degree, and either terminates in a free end, or is attached in some way to the first rib.

Class III. Those ribs which extend well beyond the transverse process and a considerable distance towards the first rib, even reaching the cartilage of the normal first rib. They possess a good body, and often united by a ligament to the first costal cartilage.

Class IV. The rib which is completely developed articulating with the first costal cartilage and with the sternum.

See Cut No. 6—Cervical ribs—symmetrical.

See Cut No. 7—Cervical ribs—right slightly longer and larger than the left.

See Cut No. 8—Cervical ribs—right larger than left, rather unusual type.

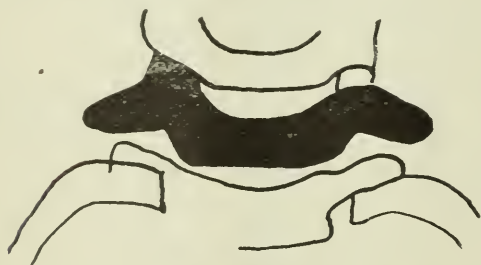


FIG. 6.—Cervical ribs.



FIG. 7.—Cervical ribs.



FIG. 8.—Cervical ribs.

See Cut No. 9—Represents an imperfectly developed cervical spine, the defect extending into the upper dorsal vertebrae. The sixth and seventh cervical bodies split, and first and second dorsal. There were eleven ribs on the left and ten on the right, and but nine dorsal vertebrae could be found.

See Cut No. 10.—Shows a cleft in the left cervical and three upper dorsal vertebrae with a marked increase in width and decrease in height of the cervical vertebrae.

Clinically, in this case, there was considerable shortening of the neck, and the head was held forward. There was marked limitation of motion in all directions. There was considerable thickening and widening of the cervical spine. No vertebral cleft could be definitely felt. No other anatomical defects.

Other cases showed the following deficiencies in connection with the presence of cervical ribs:

1. Bilateral cervical ribs—the right short and thick, the left thin and twice as long. There was also a complete cleft through the body of the tenth dorsal vertebra.

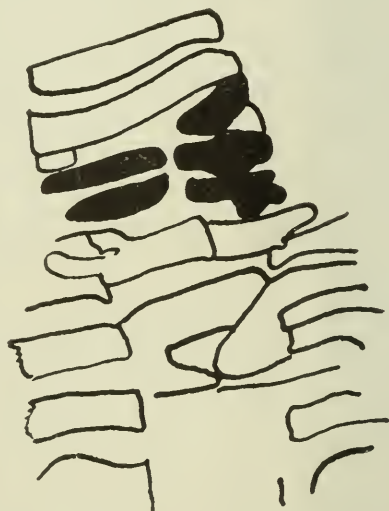


FIG. 9.—5th, 6th, and 7th cervical split.

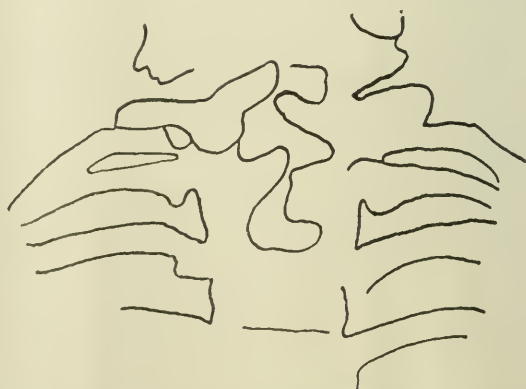


FIG. 10.—Shows a cleft in the last cervical and three upper dorsal vertebrae, with a marked increase in width and decrease in height of the cervical vertebrae.

2. Bilateral cervical ribs—a left fifth lumbar vertebra, twelve ribs on the left and eleven on the right.

3. Bilateral asymmetrical cervical ribs—partial blending of the fifth and sixth cervical bodies, and a split sixth cervical body.

4. Lower cervical vertebrae imperfect; first and second ribs are both fused.

5. Cervical ribs—eleven dorsal vertebrae; six lumbar vertebrae; bifid sixth lumbar; eleven ribs.

6. Cervical ribs—defective sixth and seventh cervical vertebrae and first and second dorsal vertebrae.

7. Cervical ribs—eleven pairs of ribs—eleven dorsal vertebrae.

8. Seventh cervical body bifid. Right torticollis.

9. Rudimentary cervical ribs—asymmetrical—right torticollis.

10. Cervical ribs. Incomplete fifth lumbar vertebra, about one-half body missing. Scoliosis.

11. Large cervical ribs going to angle of first rib.

III. DEFECTS OF THE DORSAL VERTEBRAE, INCLUDING RIB DEFECTS.

In the dorsal region there were twenty-six cases which showed defects in the vertebral bodies, varying a good deal in character and extent. Accompanying these vertebral defects were also rib defects, and the subsequent scoliotic deformities.

These defects were the result of the same faulty embryological development processes which have been described in Section I, but are much more extensive in the dorsal region, owing to the presence of the ribs. Some of these defects have already been described in Section II, in connection with the presence of cervical ribs or defects in the cervical vertebrae.

Some of these vertebral defects are classified as cases of spina bifida or spina bifida occulta. Some of them were made manifest by the presence of a tumor on the back, and others by the presence of an area of hypertrichosis.

Under the names mero-rachischisis¹⁴ and hemi-rachischisis, incomplete spina bifida, and localized spina bifida, are grouped all the cases in which the defective development of the vertebrae affects only a part and not a whole of the spinal column. These defects occur about one in one thousand births. Spina bifida occulta, or crypto-mero-rachischisis, names which have been given to those cases in which there are no obvious external evidence of the defec-

tive state of the vertebral canal. Defective ribs may also result, according to some observers, by pressure of the foetal arm on the chest wall, and are generally unilateral. The occurrence of these cases of spina bifida occulta is not uncommon in the low dorsal region as a result of these developmental defects.

Photo No. 11 represents a case of congenital scoliosis due to defective dorsal vertebrae and fused ribs on the left. There is apparently only a partial development of the fifth dorsal vertebra.



FIG. 11.—Represents a case of congenital scoliosis due to defective dorsal vertebrae and fused ribs on the left. There is apparently only a partial development of the fifth dorsal vertebra.

Photo No. 12. Missing ribs on the left and fused absent ribs on the right. There seems to be a normal number of dorsal vertebrae, but the third one is obviously defective.

Photo No. 13 shows defective cervical and dorsal vertebrae with absent and fused ribs on the left. A case of congenital scoliosis. (See Photos No. 14 and No. 15 of same case.) Apparently eight ribs on left and eleven on right.

Photo No. 16. Congenital scoliosis first noticed at two years of age—marked deformity. (See Photo No. 16 and X-ray No. 17.) Ribs are absent and others fused on right, and a number of the dorsal vertebrae are defective.

J. S. Photo No. 18. One other case of interest, a girl of five years, shows clinically a scoliosis with a hypertrichosis in the dorso-lumbar region, with a palpable depression from the first to the fifth lumbar vertebra. (See Photo No. 18. See legend on X-ray No. 19.)

Other cases in this series of defective development in the dorsal region showed the following defects:

SEX.	AGE.	CLINICAL DIAGNOSIS	CONDITION OF THE SPINE.
F	14 mos.	Dorsal scoliosis.	Eleven ribs, one missing on left, and two fused. Twelve on right. Several dorsal vertebrae split. Ten ribs on each side, cervical and dorsal vertebrae generally defective.
F	8 yrs.	Left dorso-lumbar scoliosis.	Eleven ribs on left, twelve on right, sixth and seventh ribs on left fused, fifth and sixth dorsal vertebrae imperfect.
F	12 yrs.	Left dorso-lumbar scoliosis.	Second degree cervical rib on left. 11 ribs on left, 10 on right, second rib absent. Defective second dorsal vertebra. 12 dorsal vertebral bodies.
M	12 yrs.	Left dorsal scoliosis.	Third dorsal imperfect. A small wedge-shaped piece represents the 5th dorsal; 11 dorsal vertebrae.
F	10 yrs.	Right dorsal, left lumbar scoliosis.	6th, 7th, 8th and 9th dorsal vertebrae imperfect, with an extra piece of body between the 7th and 8th dorsal vertebrae on the right. Only ten dorsal vertebrae and 11 ribs on each side.
M	10 yrs.		Third dorsal vertebra imperfect, due to lack of fusion of laminae and body. See cut No. 19.
M	13 mos.		Dorso-lumbar scoliosis. First dorsal vertebra split into two wedge-shaped pieces. Between the first lumbar and 12th dorsal on left is a triangular piece with an articular facet, probably belonging to the first lumbar. The second and third lumbar bodies are split into two parts each, varying in shape and apparently due to lack of fusion of the laminae and spinous processes.
F	8 yrs.		Nine ribs on right, ten on left. Extra body between 10th and 12th dorsal. The eleventh dorsal vertebra only partially developed on right.
M	15 mos.	Congenital scoliosis.	Almost a duplicate of X-ray No. 12. Shows a number of ribs missing in the upper dorsal region on the left with irregular and fused ribs on the right. Several of the upper dorsal vertebrae are defective.
M	12 yrs.	Congenital scoliosis.	10th dorsal vertebra split. Spine otherwise perfect. Eleven ribs on left and nine on right. The 2nd, 3rd, and 4th ribs on the right are absent. The 1st and 2nd dorsal vertebrae, as well as the 4th, 5th, 6th, and 7th, are imperfect.
?	6 yrs.		Twelve ribs on each side. On left there is great irregularity in the spacing of the ribs, the 4th and 5th, 6th and 7th are fused near their angles. The vertebral bodies of the 2nd, 3rd, 4th and 5th dorsal show a bifid condition and irregular development.
M	10 yrs.	Scoliosis.	Marked lack of proper development in the cervico-dorsal region, impossible to classify. Apparently 10 ribs on the left and 9 on the right. (See X-ray No. 20.)
M	6 yrs.	Congenital scoliosis, right dorsal, left lumbar.	The only abnormalities present in this spine are the presence of only eleven dorsal vertebrae and eleven pairs of ribs. There are five lumbar vertebrae.
F	10 yrs.	Congenital left dorso-right dorso-lumbar scoliosis.	Eleven ribs on left with very irregular spacing. The 9th and 10th being fused. On the right there are only eleven ribs springing from the vertebrae, but the 4th is split beyond the angle into two and fused partially with the one below. The 4th and 5th vertebrae are imperfect, the 5th being represented only by a small wedge-shaped piece of bone on the right of the spine. The 8th is also only partially developed.
F	10 yrs.	Congenital scoliosis.	Twelve ribs on each side. On the right the 4th and 5th arise by a common stem and split later into two ribs. There are only eleven dorsal vertebrae, the 2nd, 3rd, and 4th being imperfect, and the 5th being represented only by a small wedge-shaped piece of bone on the right of the spine from which a rib springs.
F	12 yrs.	Congenital scoliosis—left cervico-dorsal, right dorsal, left lumbar.	Eleven ribs on each side. Ten dorsal vertebrae. The 7th, 8th, and 9th bodies partially fused and split. Scoliosis. (See X-ray No. 21.)
F	10 yrs.		No spinal deformity. 12 dorsal vertebrae. A very long last dorsal rib on right and a short rib on left resembling a transverse process.
M			Shows no vertebral deformity, but has only eleven ribs on right and twelve on left. The 5th lumbar spinous processes and laminae have not fused.

SEX.	AGE.	CLINICAL DIAGNOSIS	CONDITION OF THE SPINE.
Plate 801—Baby			There are thirteen dorsal vertebrae, thirteen ribs on right and twelve on left.
Girl	3 yrs.		Normal number of dorsal vertebrae, long last rib on right and very short on left.
Boy			Eleven ribs on right, twelve on left. No other defect.
Girl	9 yrs.		Twelve dorsal vertebrae, thirteen ribs on left, one as 1st lumbar vertebra. Twelve on right.
Boy			Twelve ribs on right, thirteen on left, the extra one being on the 1st lumbar vertebra, about 2½ inches long.
Girl	16 yrs.		Congenital scoliosis—spina bifida occulta. (See X-ray No. 22.) Multiple defects of vertebrae and ribs. 5th lumbar split wide open. 10 ribs on left, eleven on right. On right 2nd rib beyond angle is divided into two by a loop. The 6th and 7th ribs are partially fused.
Plate No. 347			Congenital scoliosis—the dorsal vertebrae from the 7th to the 12th are generally defective with irregular development and fusion of the bodies.
Boy	?		Twelve ribs on right and eleven on left. The 12th on right is very short.
Boy	?		Third dorsal vertebral body bifid. No other defects. No scoliosis.
Girl			Eleven ribs on left. 12 on right. 1st sacral vertebra bifid.
Boy	?		Congenital scoliosis—12 ribs on right and 11 ribs on left. The 7th and 8th ribs on the left are partially fused and the 5th rib on the left asymmetrical and placed much more closely to the 6th than normal. There is a general defect in the dorsal spine, below the 5th dorsal vertebra. The 7th dorsal has only one-half a body present, the 6th is split diagonally. The 9th is wedge shaped. The 10th and 11th imperfect. Practically the whole lumbar spine is in a condition of rachischisis. A case of spina bifida which died at the age of 6½ years after several operations.
Plate No. 225			Imperfect—eleventh dorsal vertebra cleft and bifid.
Boy	1 week		1st and 2nd dorsal cleft and wedge-shaped, with apex to right. 1st and 2nd rib on right fused near angle. Eleven ribs on right and twelve on left.

IV. DEFECTS IN THE LUMBAR AND SACRAL REGIONS.

In this series there were a large number of cases which showed defects of various types of the lumbar and sacral vertebrae. In the sacral region ordinary defects, such as lack of fusion of the laminae and spinous processes, cannot be recorded as abnormal until after the seventh year, for they do not normally fuse until about that time. Many cases of this type had to be thrown out of consideration, when further study was made of them on account of their being under seven years of age. In all, there were eighteen defects of the lumbar vertebrae and sixteen of the sacral. Many of these cases had defects of both lumbar vertebrae and sacral vertebrae in common.

According to Gray's Anatomy (Spitzka edition, 1913), the lumbar vertebrae have two additional centers for the mammillary tubercles, which project from the back part of the superior articular processes. The transverse process of the first lumbar vertebra is sometimes developed as a separate piece, which remains permanently unconnected with the remaining portion of the bones, thus forming a

lumbar rib. In the sacral region the development is as follows: At about the fourth or fifth month of foetal life ossification of the central part of the bodies of the first three vertebrae commences. Between the sixth and eighth month ossification of the laminae takes place, and about the same period the centers for the lateral masses for the first three sacral vertebrae make their appearance. The period at which the arch becomes completed by the junction of the laminae with the bodies in front and with each other behind varies in different segments. The junction between the laminae and the bodies takes place first in the lower vertebrae as early as the second year, but is not affected in the upper ones until the fifth or sixth year.

Anomalies of the fifth lumbar vertebra are so common that the late Dr. Thomas Dwight was doubtful as to just what should be considered normal. Anomalies of the low lumbar and sacral regions are most common, but vary considerably in type. This region is the most common one for the occurrence of spina bifida and spina bifida occulta. Asymmetrical transverse processes of the fifth lumbar vertebra are very common and some of the more unusual



FIG. 12.—Missing ribs on the left and fused and absent ribs on the right. There seems to be a normal number of dorsal vertebrae, but the third one is obviously defective.

ones will be described. This latter condition is not alone the cause of scoliosis, for many cases have the condition discovered accidentally by x-ray examination. Neither do extra ribs and fused ribs or numerical variations in the numbers of the vertebral bodies cause scoliosis. Occasionally one finds accompanying these cases of defective vertebrae other congenital conditions such as dislocation of the hip or a paralytic club foot, which often accompanies a condition of spina bifida or spina bifida occulta. Several such cases occurred in this series, often with only a split or bifid fifth lumbar, or first sacral, or both. As a general rule, the majority

of the defects involved the low lumbar, that is, below the fourth and the three upper sacral vertebrae. Defects of the other lumbar segments were rare unless the whole region was involved. As noted above, the presence of a first lumbar rib was not uncommon.

Boy, Age 10. X-ray shows 11 ribs on left and 12 on right. The laminae and spinous processes of the fourth and fifth lumbar and first sacral are cleft.

Girl, 5 Weeks. Abnormality of whole lower lumbar and sacral spine, as well as the eleventh and twelfth dorsal vertebrae. The eleventh and



FIG. 13.—Shows defective cervical and dorsal vertebrae with absent and fused ribs on the left. A case of congenital scoliosis. (See Figs. 14 and 15 of same case.) Apparently 8 ribs on left and 11 on right.

twelfth lumbar bodies are apparently fused. There is a general widening of the whole lumbar spine.

Boy, 10 Years. Split and bifid fourth lumbar, with lateral displacement of trunk to right. Marked sacralization of transverse process of fifth lumbar on left (See Cut No. 23).

Boy, 13 Years. Lumbar spine shows at top of sacrum, on left, a large, irregular-shaped piece of bone, probably an incomplete body. Spine tipped sharply to right. The dorsal spine shows a bifid condition of the spinous processes extending from the second to the sixth dorsal. Scoliosis. (See Cuts No. 24 and 25.)

The next four cases and cuts show variations of the different types of split and bifid fifth and first sacral vertebrae; otherwise they have no clinical significance. (See Cuts Nos. 26, 27, 28 and 29.)

The next three cases show different types of asymmetrical sacralization of the fifth lumbar transverse process. This condition may perfectly well be present without symptoms, but a certain number apparently may have pain and lateral displacement of the trunk as a result of this impingement on the ilia, and so may be relieved by operation (Adams¹). (See Cuts Nos. 30, 31 and 32.) (O'Reilly¹⁵.)

Girl, 13 Years. The bifid condition of her spine was found only after an x-ray examination was made as a record of her scoliosis. It showed an incomplete fifth lumbar, with lack of fusion of the fifth lumbar laminae and a rudimentary condition of the last dorsal and first lumbar vertebrae.

Boy, 4 Years. This boy had an older sister who was born with an upper dorsal spina bifida. He came to the hospital on account of trouble with his feet. He began to walk at two years



FIG. 14.—(See x-ray No. 13.)



FIG. 15.—(See x-ray No. 13.)



FIG. 16.—Congenital deformity first noticed at two years of age—Madel deformity. (See Fig. 17.) Ribs are absent and others fused on right, and a number of the dorsal vertebrae are defective.



FIG. 17.—(See x-ray Fig. 16.)



FIG. 18.—J. S. One other case of interest. A girl of 5 years —shows clinically a scoliosis with a hyper:richosis in the dorso-lumbar region, with a palpable depression from the first to the fifth lumbar vertebra.



FIG. 18. Shows markedly defective spine with structural scoliosis—10 ribs on each side and 10 dorsal vertebrae. Ribs on left fused.

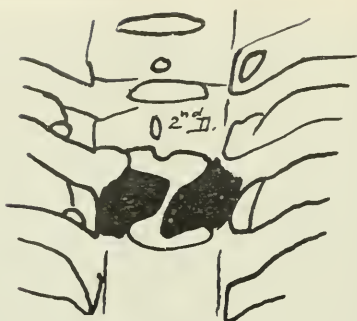


FIG. 19.—Third dorsal vertebra imperfect, due to lack of fusion of laminae and body.

of age. When he was born there was noticed a growth of hair on the lower part of his back. Examination showed that there was a paralysis of the internal group of muscles of the right lower leg, besides the internal rotators of the thighs. On the back, in the low dorsal region, there was an absence of several spinous processes. Over this area there was a clump of long black hair, covering an area of about $2\frac{1}{2}$ by 4 inches. The x-ray (See Cut No. 33) showed a

fusion and lack of development of the last two dorsal and first lumbar vertebrae, with a marked shortening of the lumbar spine.

Girl, $2\frac{1}{2}$ Years. C. R. Spina bifida occulta. Right foot in a position of talipes equino valgus. Paralysis of the anterior tibial and flexor tendons of the right foot. Congenital dislocation of right hip. The x-ray shows changes in structure and size of the third and fourth lumbar vertebrae. The spinous processes and laminae are bifid, and the bodies are wider and thinner than normal.

Girl, 3 Years. Child born with a deformity of the spine and lower legs. Examination showed a small swelling in the region of the first lumbar vertebra. The left leg is atrophied and the foot shows a paralytic deformity of talipes valgus. The x-ray (See Cut No. 34) shows the whole lumbar region involved. There are no perfect lumbar vertebrae, the whole lumbar region being crumpled up on itself. The vertebrae are rudimentary and flattened. Lumbar spine about $1\frac{1}{2}$ inches in vertical direction.



FIG. 20. Marked lack of proper development in the cervico-dorsal region, impossible to classify. Apparently 10 ribs on left and 9 on the right.



FIG. 21.—Eleven ribs on each side. Ten dorsal vertebrae. The 7th, 8th and 9th bodies partially fused and split. Scoliosis.



FIG. 22.
F., 10 years. Eleven ribs on each side. Ten dorsal vertebrae. The 7th, 8th and 9th bodies partially fused and split. Scoliosis. (See Fig. 21.)



FIG. 23.—Congenital scoliosis—spina bifida occulta.



FIG. 24.
Boy, 10 years. Split and bifid 4th lumbar with lateral displacement of trunk to right. Marked sacralization of transverse process of 5th lumbar on left.



FIG. 25.—(See x-ray tracing, Fig. 26.)



FIG. 27.—Fifth lumbar and 1st sacral bifid.

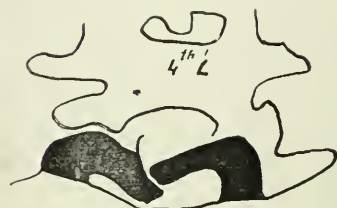


FIG. 28.—Bifid 5th lumbar.



FIG. 29.—First sacral bifid.



FIG. 26.—Boy, 13 years. Lumbar spine shows at top of sacrum, on left, a large irregular-shaped piece of bone, probably an incomplete body. Spine tipped sharply to right. The dorsal spine shows a bifid condition of the spinous processes, extending from the 2nd to the 6th dorsal. Scoliosis. See Fig. 25.



FIG. 30.—Bifid 1st sacral.



FIG. 31.—Sacralized 5th lumbar.



FIG. 32.—Sacralized 5th lumbar transverse process on left.

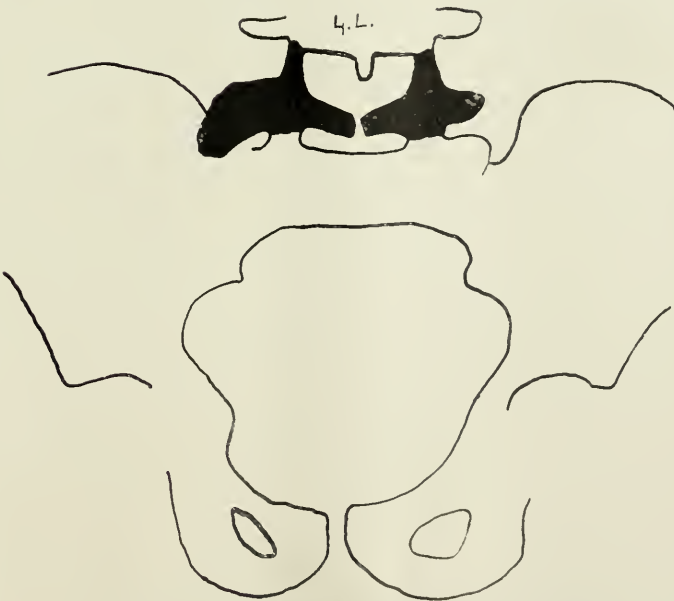


FIG. 33.—Bifid 5th lumbar—large hooked transverse process on right sacralized.



FIG. 34.—Shows whole lumbar region involved. There are no perfect lumbar vertebrae, the whole lumbar region being crumpled up on itself. The vertebrae are rudimentary and flattened. Lumbar spine about $1\frac{1}{2}$ inches in vertical direction.

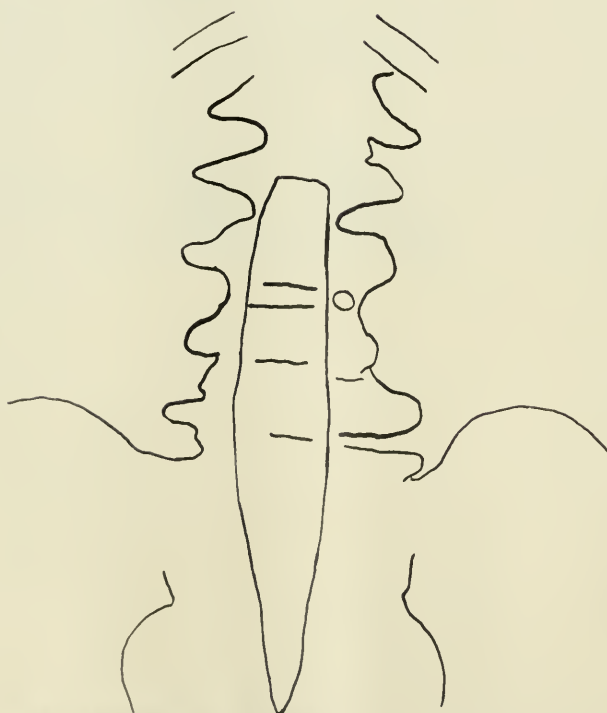


FIG. 35.—Shows cleft extending from 3rd lumbar to tip of coccyx. Apparently no laminae or spinous processes.



FIG. 36.—The x-ray shows a rudimentary pelvis, although from lack of ossification the whole structure cannot be seen. Dislocation of left hip. Cleft of lumbar and sacral spine extending from first lumbar to tip of sacrum. Whole lower spine much widened and flattened. The right ilium is rotated outward so that one apparently looks directly at the iliac portion of the sacro-iliac articulation.

Girl, H. C., Age (?). Plate 828. Shows complete cleft, apparently without spinous processes or laminae extending from third lumbar to tip of coccyx (See Cut No. 35).

Girl, 6 Months. Child was born with a patch of hair on the back. Examination showed a patch of hair over the lumbar spine about the size of the palm of the hand. A distinct cleft could be felt in the region of the second and third lumbar vertebrae. The left leg shows a congenital dislocation of the hip. The left side of the pelvis is much higher than the right. The x-ray (See Cut No. 36) shows a rudimentary pelvis, although from lack of ossification the whole structure cannot be seen. Dislocation of left hip. Cleft of lumbar and sacral spine extending from first lumbar to tip of sacrum. Whole lower spine much widened and flattened. The right ilium is rotated outward so that one apparently looks directly at the iliac portion of the sacro-iliac articulation.

Girl, 1 Year. Shows apparently twelve dorsal vertebrae and ribs. A lack of development beginning at about the ninth dorsal vertebra and extending to the sacrum, with shortening and widening of the lumbar spine. The last four dorsal vertebrae show even less signs of development than the lumbar (See Cut No. 37).

The other cases in this group were the milder and less severe types of vertebral deficiencies already shown and need not be further described.

CONCLUSION.

It is obvious, even after studying such a large series of cases, that no very definite conclusion can be reached as to the cause of such vertebral and rib defects. One can only fall back on the original morphological and embryological theories, and can be content to exhibit these cases as examples of such developmental faults as Nature saw fit to impose. That many of them cause serious structural defects and scoliosis is not questioned, and the problem can be met, at best, only by such external corrective methods as one can employ.

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- ¹² Roberts, John B.: The Surgical Importance of Cervical Ribs to



FIG. 37.

Girl, 1 year. Shows apparently 12 dorsal vertebrae and ribs. A lack of development beginning at about the 9th dorsal vertebra and extending to the sacrum, with shortening and widening of the lumbar spine. The last four dorsal vertebrae show even less signs of development than the lumbar.



FIG. 38.

A Case of lumbar vertebral deficiency, showing complete disruption of the lumbar spine. There was also a congenital deformity of the left foot not paralytic nor due to the spina bifida, but coincidental.



FIG. 39.

Lateral view of previous case, showing bone, apparently vertebral body in anterior spina bifida.



FIG. 40.

A lateral view of a case of spina bifida which included the spine.

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Book Reviews.

The Sex-Complex. By W. BLAIR BELL, B.S., M.D. Lond. Second Edition. New York: William Wood & Co. 1921.

This monograph is not, as its title might suggest, an essay on psychoanalysis, but "a study of the relationships of the internal secretions to the female characteristics and functions in health and disease. Based on several previous communications, the first edition, published in 1916, was favorably reviewed in THE JOURNAL at that time. This second edition represents extensive additions, amplifications and revisions, rather than presentations of new aspects of the subject. The work, which is largely expository, aims to demonstrate the morphologic, physiologic, psychologic and pathologic aspects of the endocrine control of sex-functions by photomicrographs. The volume is a valuable contribution to the literature of gynecology on the one hand and of endocrinology on the other.

The Diseases of the Newborn. By DR. AUGUST RITTER VON REUSS. New York: William Wood & Co. 1921.

This monograph, completed at the outbreak of the Great War but not published until its conclusion, represents the material and teaching of the clinics of Schauta and von Pirquet at Vienna. Of particular interest are the chapters on birth injuries, the umbilicus, hemorrhagic disease, tuberculosis, and syphilis. The work is illustrated with 90 figures, many of them in colors. There is an extensive alphabetic bibliography of over 1500 titles. The book is a monument of Teutonic industry and system.

Text-Book of Nervous Diseases. By CHARLES L. DANA, A.M., M.D., LL.D. Ninth Edition. New York: William Wood & Co. 1920.

Previous editions of this standard text-book for students and practitioners of medicine have been favorably reviewed in THE JOURNAL. In this ninth edition is new material on neurologic surgery and nerve injuries, derived from the Great War. New chapters have also been added on psychology and on endemic encephalitis. For various reasons the Basle nomenclature has not been adopted. The book is illustrated with 262 figures, including four plates in black and color. The appendix presents a useful table of the function and innervation of the muscles.

An Introduction to the Study of Hypnotism. By H. E. WINGFIELD, M.A., M.D., B.C. Cantab. Second Edition. New York: William Wood & Co. 1920.

The first edition of this monograph on experimental and therapeutic hypnotism has been favorably reviewed in THE JOURNAL. In this second edition there has been added to the chapter on treatment an account of cases bearing on repressed memories, in the light of Freud's theories. The book is intended primarily for those who are unacquainted with hypnotism, and aims to provide sufficient knowledge, theoretical and practical, to enable the use of suggestion in suitable cases.

The Course of Operative Surgery. By PROFESSOR DR. VICTOR SCHMIEDEN and ARTHUR TURNBULL, M.B., Ch.B. Glasgow. Second Enlarged English Edition. New York: William Wood & Co. 1920.

The first German edition of this admirable handbook for practitioners and students was published in Berlin in 1910, while the author was an assistant there in Professor Bier's surgical clinic. Five subsequent editions have appeared in the original. The first British edition was undertaken by the translator in 1912.

This second enlarged edition is an anatomical reconstruction in English of the main facts of the operative course on the cadaver, affording a connected and scientific survey of modern operations. There is a foreword by Professor Dr. A. Bier, a preface by the author, and an introduction by Mr. Turnbull. Dr. Schmieden, now professor of surgery at the University of Halle, aims to "prune the surgical tree of knowledge of alternative methods and leave only the stem common to all countries." The text is accompanied by 436 excellent illustrations. The English edition retains the B. N. A. nomenclature. The work presents the facts of modern operative surgery in classic form, in concise statement, within the limits of a handy volume.

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RENAISSANCE OF HUMORAL PATHOLOGY.

ASCHNER, in a continued article (*Wien. klin. Woch.*, Jan. 26, Feb. 2, 1922), discusses the practical significance of the theory of diathesis and the revival of humoral pathology as a therapeutic consequence of the study of internal secretions. He considers particularly conditions of hypotonus, infantilism, hyperthyroidism, and plethora as modern representatives of the four classic physical types.

[R. M. G.]

THE THEORY OF CANCER.

FRANKEL, in a continued article (*Wien. klin. Woch.*, Feb. 2-9, 1922), summarizes modern theories of cancer as a systemic disease, but contributes nothing of novelty or importance.

[R. M. G.]

SUCTION DRAINAGE, WITH PRESENTATION OF AN APPARATUS.

CAMPBELL (*Journal of Urology*, Feb., 1922) says that in attempt to solve the problem of satisfactory post-operative drainage of the urinary organs, especially the bladder after prostatic surgery, the urological service of the Bellevue Hospital utilized in turn most of the drainage systems and contrivances advanced to date. Using parts of this one and that, a very serviceable and not too complicated system has been evolved.

The essential is dryness of the wound.

The contrivance is described in detail and five varied cases presented to show its results.

[B. D. W.]

ACKNOWLEDGMENT OF PRIORITY FOR THE TREATMENT OF IMPACTED CALCULI IN THE LOWER END OF THE URETER RELEASED BY FULGURATION.

YOUNG (*Journal of Urology*, Feb., 1922), in February, 1918, reported three cases of impacted calculi in the intravesical portion of the ureter, which were liberated by fulguration.

Although he made no claim to priority, he now takes pleasure in referring to Dr. Furniss's case, published May 17, 1913, under similar title and using same method, calling attention to the priority which Dr. Furniss deserves.

[B. D. W.]

VIABILITY OF SPIROCHETA PALLIDA IN EXCISED TISSUE AND AUTOPSY MATERIAL.

LACY AND HAYTHORN (*Amer. Jour. of Syph.*, Vol. v, No. 3, July, 1921) write that the finding of active treponemata in blebs in the case of a congenital syphilitic baby kept in a refrigerator for 26 hours before autopsy led to an examination of the literature and to some experiments on rabbits. The authors found that the reported viability-time for the treponema varied from a few minutes, on drying, through periods of a few hours, when kept moist, up to 24 hours in the ice chest.

They observed positive motility in human autopsy material 48 hours after death, the body having been kept in a refrigerator; in a chancre seven days after excision; in serum exudate in sealed capillary tubes at room temperature 121 days after collection; in saline suspension of rabbit's testicle in sealed capillary tubes at room temperature 58 days after castration; in rabbit testicle at refrigerator temperature 58 days after castration. After complete drying of the material containing the treponema, all attempts to inoculate were negative.

[A. W. C.]

EXPERIMENTAL OBSERVATIONS UPON THE EFFECT OF CHOLESTEREMIA ON THE RESULTS OF THE WASSERMANN TEST.

CRAIG AND WILLIAMS (*Am. Jour. of Syph.*, Vol. v, No. 3, July, 1921) state that the conflicting reports of various recent writers on the subject of cholesterol in the blood in health and disease, and the important effect considered by some to be caused by changes in the amount of cholesterol in the blood, led to a series of experiments on rabbits. This animal was chosen both because it develops the positive Wassermann reaction and because the feeding of large amounts of cholesterol causes an accumulation in the blood for several days, greater than in other animals. They were given 1.25 gm. per kilo of body weight. The Wassermann tests were all performed with an antihuman hemolytic system, using the technique of Craig—antigen consisting of an alcoholic extract of human heart, to which 0.4 per cent. of cholesterol was added. None of the rabbits showed a positive Wassermann test; all had been frequently tested during ten days previous to the experiment and found consistently negative.

SPINAL PUNCTURE IN DIAGNOSIS AND TREATMENT.

BASTROM (*Am. Jour. of Syph.*, Vol. v, No. 3, July, 1921) reviews the writings of 38 authors on the subject of spinal puncture. As regards treatment he feels that it is only in the various meningitides that any treatment by way of the spinal fluid has unquestioned value. That the seeming improvement in the intraspinal treatment of central nervous system syphilis can be just as well explained by the usual form of treatment which continues on into the time of using the intraspinal. He dismisses treatment by adding that in various pathological conditions of the central nervous system spinal drainage is of value. He then takes up the subject of diagnosis.

He states that in his opinion it is wanton practice to do routine spinal punctures or in cases where the diagnosis is not almost certain to be aided.

He mentions its diagnostic value in the meningitides, in meningismus, meningeal hemorrhage of the new-born, carbon dioxide poisoning, shell concussion, epidemic encephalitis, injecting air in sub-arachnoid space followed by x-ray in diagnosis, diagnosis of types of hydrocephalus.

Instances are cited in which infections of the meninges occurred following release of spinal fluid during septicaemia; syphilis and acute meningitis differ widely, yet are both septicaemias, therefore it seems possible that there is a real danger in puncturing during the septicaemic stage. The fact remains, however, that by spinal puncture in early syphilis the detection of early neurosyphilis is often made when otherwise overlooked.

Little of positive value seems to have been said of the curative value of spinal drainage.

[A. W. C.]

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JOHN P. SUTHERLAND, M.D.
S. BURT WOLBACH, M.D.
GEORGE R. MINOT, M.D.

WALTER P. BOWERS, M.D., *Managing Editor*.
GEORGE G. SMITH, M.D., *Assistant Editor*.

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THE ANNUAL DISCOURSE.

THE orator of the Massachusetts Medical Society set forth yesterday in convincing fashion the importance of viewing problems of the public health in a large way. As he truly says, health is an interest which concerns the community and not the individual. The Book of Leviticus, which laid down the rules of daily life for the preservation of the well-being of the body politic, was an early expression of a health law. In modern times we have witnessed an amazing spread of public health activities from the limited field of contagious diseases into varied spheres of preventive medicine.

Following an extensive study of health conditions in different parts of Europe after the Great War, the orator comments interestingly on what he saw in Poland, Lemberg, Bucharest and Tomsk, the war having furnished an unusual opportunity for the development of the international viewpoint. He pays a deserved tribute to the ability of the late Henry P. Davison in planning and furthering the organization of the Red Cross, sketches the birth of the League of Red Cross Societies, a permanent international clearing house for the promotion of the health of the world, and closes with a plea for unselfish international combi-

nation, urging all medical men to keep in touch with such a movement in medicine.

THE JOURNAL is glad to be able to present to its readers today the oration in full.

NEW REMEDIES.

NEARLY every mail brings to the physician circulars describing some new medicinal agent. Frequently the physician can tell at a glance that the product is of questionable value, or, from the way in which it is exploited, that it is really intended for the public and not for the profession; the physician is simply supposed to play the rôle of introducing one more "patent" medicine to the public. In many cases, however, the circulars describe painstaking and conscientious efforts on the part of American manufacturers to introduce new drugs of value, but the physician, not finding these drugs mentioned in standard textbooks and not remembering to have seen references to them in medical journals, is quite likely to pay no attention to them. Or the physician may have heard of new drugs (such as benzyl benzoate and analogous compounds, or of new local anesthetics, such as saligenin) and not be able to find a discussion of what they are, the indications and contraindications for their use, the dosage, etc. It is the purpose of "New and Non-Official Remedies" to give just such information.

It is the publication of the Council on Pharmacy and Chemistry through which this body annually presents the American medical profession with disinterested, critical information about the proprietary medicines which are offered to the profession, and which the Council deemed worthy of recognition. In addition to the descriptions of proprietary preparations the book contains descriptions of those non-official remedies which the Council deemed deserving of consideration by the profession.

To be admitted to "New and Non-Official Remedies" it is required that the quantitative composition of the article be declared, that the therapeutic claims made in marketing the article must be truthful, and that the preparation has, or gives promise of having, therapeutic value.

The descriptions of articles are based in part on investigations made by or under the direction of the Council and in part on information submitted by the manufacturer or his agent. However, statements made by those interested in the manufacture or marketing of an article are accepted only if they are supported by substantiating evidence or conform to generally accepted facts. Physicians, therefore, may use the book as a guide in determining whether or not a given proprietary prepara-

tion is indicated in the treatment of their patients. The interests of the patients and of the physicians themselves will be safeguarded by following the suggestions made in *The Journal of the American Medical Association* ("Helping the Council"; *J. A. M. A.*, Nov. 6, 1920, p. 1275) and by giving no consideration to any proprietary medicinal agent which has not been admitted to "New and Non-Official Remedies."

A valuable feature of the book is the grouping of preparations in classes. Each of these is introduced by a general discussion of the group. Thus the silver preparations, the iodine preparations, the arsenic preparations, the animal organ preparations, the biologic products, etc., each is preceded by a general, thoroughly up-to-date discussion of the particular group. These general articles compare the value of the products included in the group with similar pharmacopeial and other established drugs which it is proposed that these proprietary preparations shall supplant.

A glance at the preface of this volume shows that the book has been extensively revised. In fact, each edition of "New and Non-Official Remedies" is essentially a newly written book, brought up to date by those who speak with authority on the various phases of therapeutics.

Physicians who wish to know why a given proprietary is not described in "New and Non-Official Remedies" will find the "References to Proprietary and Unofficial Articles" not found in N. N. R. of much value. In this chapter (in the back of the book) are given references to published articles dealing with preparations which have not been accepted. These include references to the "Reports of the Council," to "Reports of the A. M. A. Chemical Laboratory," and to articles which have appeared in *The Journal of the American Medical Association*.

"New and Non-Official Remedies" should be in the hands of physicians. The book contains information about the newer materia medica which cannot be found in any other publication.

The book will be sent postpaid by the American Medical Association, 535 North Dearborn Street, Chicago, on receipt of one dollar and fifty cents.

In order to keep the book thoroughly up to date (*i.e.*, between the annual revisions) supplements are issued, which may be obtained free by those who have the book. The material for these supplements is first published in *The Journal of the American Medical Association*. As an illustration of the value of these supplementary reports we may refer the reader to the report on the at present much discussed drug quinidine (*J. A. M. A.*, April 8, p. 1051). Only a specialist in cardiac diseases would

have been able to sift the various publications on the use of this drug and to have arrived at some definite conclusion as to its usefulness and possible dangers.

THE GORGAS MEMORIAL.

IN the issue of January 19, 1922, *THE JOURNAL* published an announcement of plans formulated for the erection of the Gorgas memorial.

In order to arouse further interest in this project the subject will be presented to the members of the Massachusetts Medical Society at the annual meeting.

Drs. Fred B. Lund and Richard P. Strong will be given an opportunity to address the meeting and give detailed information relating to this memorial.

The subject is one which should interest every physician, and Massachusetts should show in a substantial way its appreciation of the work done by General Gorgas.

Miscellany.

REPORTS FROM THE INFORMATION SERVICE OF THE ROCKEFELLER FOUNDATION.

A REVIEW of the activities of the Rockefeller Foundation in 1920, written by its president, George E. Vincent, will be issued soon.

In the first instalment of the review, made public recently, the things done by the Foundation directly and through its departmental agencies—the International Health Board, the China Medical Board, and the Division of Medical Education—are summarized as follows:

During the year 1921 the Rockefeller Foundation continued a quarter million annual appropriation to the School of Hygiene and Public Health of Johns Hopkins University; pledged two millions to Harvard for a school of health; contributed to public health training in Czecho-Slovakia, Brazil and the United States; aided the Pasteur Institute of Paris to recruit and train personnel; promoted the cause of nurse training in America and Europe; underwrote an experimental pay clinic in the Cornell Medical School; formally opened a complete modern medical school and hospital in Peking; assisted 25 other medical centers in China; promised a million dollars for the Medical School of Columbia University; contracted to appropriate three and one-half millions for the rebuilding and reorganization of the Medical School and hospital of the Free University of Brussels; made surveys of medical schools

in Japan, China, the Philippines, Indo-China, Straits Settlements, Siam, India, Syria and Turkey; supplied American and British medical journals to 112 medical libraries on the continent; supplemented the laboratory equipment and supplies of five medical schools in Central Europe; defrayed the expenses of commissions from Great Britain, Belgium, Serbia and Brazil; provided 157 fellowships in hygiene, medicine, physics and chemistry, to representatives of 18 countries; continued a campaign against yellow fever in Mexico, Central America and South America; prosecuted demonstrations in the control of malaria in ten states; co-operated in hookworm work in 19 governmental areas; participated in rural health demonstrations in 77 American counties and in Brazil; neared the goal of transferring to French agencies an anti-tuberculosis organization in France; provided experts in medical education and public health for counsel and surveys in many parts of the world, and rendered sundry minor services to governments and voluntary societies.

A MEDICAL CENTER OPENED IN PEKING.

In September, 1921, were held the formal dedication exercises of the Peking Union Medical College, which the Foundation has built, staffed and equipped. The purposes of the college are to conduct a high-grade medical curriculum for undergraduates; to provide graduate training for laboratory workers, teachers and clinical specialists; to offer short courses for physicians; to furnish opportunities for research, especially in diseases peculiar to the Far East; and incidentally to extend popular knowledge of modern medicine and public health among the Chinese.

"The entire plant comprises for purposes of instruction, for faculty and student quarters, for mechanical services and storage, an area of about 25 acres and a total of 59 buildings. All the essential laboratories and lecture rooms, a hospital of 225 teaching beds, and an out-patient department are provided. It was necessary not only to build a medical school and hospital but to add to them the housing, water supply, sewerage, electric light and fuel gas services of a modern community."

YELLOW FEVER IN RETREAT.

President Vincent of the Rockefeller Foundation summarizes as follows the salient facts about yellow fever:

"Probably prevalent in Aztec times in Mexico and Central America; for last two centuries a dreaded scourge in Mexico, the West Indies, Central America and South America; frequently invading North American ports and causing thousands of deaths in the lower Mississippi Valley; fact of transmission by bite of female

Stegomyia mosquito established by American Army Medical Commission under Reed in Cuba, 1900-1901; Havana and Cuba freed from fever by Gorgas, who organized anti-mosquito measures, 1901-1902; example followed in Rio de Janeiro and Vera Cruz, 1903-1909; Panama Canal Zone successfully protected by same methods, 1904-1906; fear that canal traffic might carry disease to Far East and the confidence of Gorgas that fever could be eliminated led to appointment in 1916 by International Health Board of special commission to survey seed-beds of infection; Gorgas, head of commission, recommended a campaign of extermination; during delay caused by war, Noguchi of Rockefeller Institute of Medical Research visited Ecuador, Peru and Yucatan, isolated germ believed to be inciting cause of yellow fever, and prepared vaccine and serum, 1918-1920; yellow fever commissions organized in Central American countries, Colombia, Venezuela, Ecuador and Peru; intensive campaign, 1918-1919, under Connor eliminated disease from Guayaquil, the chief endemic center; 1920, commission sent to West Coast of Africa to investigate suspected areas; with occasional outbreaks, most of them traceable to places in Southern Mexico, the fever gradually gave ground; late in 1920 Mexican government organized commission and invited coöperation of International Health Board.

"Up to the beginning of 1921 experience with Noguchi's vaccine and serum indicated that the former when properly administered affords a marked protection against attacks of yellow fever, and that the latter, if it is used on or before the third day of the onset of the disease, reduces the mortality in a striking way. Data reported during last year confirm these conclusions. In Peru, of a group of 50 non-immune soldiers who were being sent into an infected district, 25 were vaccinated and 25 were left unvaccinated. Twenty of the latter group contracted yellow fever, while no case of the disease occurred among members of the former. Of 12 yellow fever patients in Belize, Honduras, who were treated with serum on or before the third day of the attack, 11 recovered. Until yellow fever is eradicated at its sources, the vaccine and serum promise to be most valuable means of prevention and cure.

"With the entrance of the Mexican government early in 1921 into the yellow fever campaign the prospects of successful advance brightened. The chief remaining sources of infection were attacked. During 1921, Ecuador, Honduras, Nicaragua and Costa Rica were not invaded by the disease. Guatemala reported no case after February 2; Salvador's last case was recorded February 15; by July 16 Peru was free, as was British Honduras in November. From Northern Brazil cases were

reported, but the situation was being dealt with by the government. It was gratifying to the Foundation to be able to advance money for continuing the campaign in Peru at a time when government funds were not quickly available. The advantages of having resources which could be immediately mobilized in an emergency were strikingly demonstrated. It was another example of the efficiency of a unified plan of coöperation. The outlook is encouraging; it is too early to proclaim a complete victory, but the purpose to push the fight against yellow fever remains steadfast."

GIFT TO HARVARD.

The Foundation in 1921 gave to Harvard University \$1,660,000 to permit the expansion of a course in health training into a school of public health.

"Harvard was the second American university to establish a course in public health training. The University of Pennsylvania was the pioneer. By joining forces with the Massachusetts Institute of Technology, Harvard was able to offer a fairly well-rounded curriculum of fundamental studies in preventive medicine and sanitary engineering. Tropical medicine was also given an important position which has been well maintained.

"More recently Harvard, through its medical school, took the lead in establishing courses of training in the field of industrial hygiene, which deals with the problems of fatigue, occupational disease, sanitation of mines and industrial plants, physical and medical examination, and care for transportation, factory and commercial workers, education in personal hygiene, mass athletics, recreation, etc.

"Admirable as the work in public health training, with its later emphasis on industrial hygiene, was, the Harvard authorities were not satisfied. They felt the need of adding departments which were lacking—for example, public health administration, epidemiology and vital statistics—and of strengthening other courses which were undermanned, inadequately equipped, and too meagerly supported. There was a desire to reorganize and unify the whole undertaking into a separate school of health which should have its own headquarters and teaching staff. It was estimated that to accomplish this and to provide for future growth additional funds to the amount of \$3,000,000 would be required. Toward this the Rockefeller Foundation appropriated \$1,660,000, and agreed if certain contingencies should arise during the next five years to supply \$500,000 more. The remainder of the total sum required was set aside or pledged by Harvard, and the organization of the new institution is well under way.

"While the Harvard School will include all

the fundamental subjects it will not in every respect duplicate the work at Johns Hopkins. There will be differences in specialization and emphasis, so that the two institutions together will enrich and widen the field of investigation and extend the facilities for training. Advanced students may well study both in Boston and in Baltimore."

REORGANIZATION OF THE BUREAU OF PREVENTABLE DISEASES OF THE DEPARTMENT OF HEALTH OF NEW YORK CITY.

FOR some time the work of this department has been administered under nineteen district units. According to *The Weekly Bulletin* of May 27, 1922, this plan has not been a success and the method has been changed. The various units are now concentrated in the headquarters of the department, thereby releasing more than 30 nurses for field work. Under the older system many of these nurses were engaged in administrative work, such as book-keeping and other office work.

The new plan contemplates intensification of tuberculous and other clinic services. It is estimated that the reorganization will add to the resources of the department service as much service as would be secured by the expenditure of \$45,000.

UNITED STATES DEPARTMENT OF LABOR, CHILDREN'S BUREAU.

THE appointment of Dr. Ethel M. Watters of San Francisco as consultant in the administration of the Sheppard-Towner Maternity Act is announced by the United States Department of Labor through the Children's Bureau. Dr. Watters has been since 1919 director of the Bureau of Child Hygiene in the California State Board of Health, and is a well-known pediatrician. She becomes a member of the staff of the Federal Children's Bureau, which is charged with the duty of administering, in coöperation with the states, the federal funds appropriated for promoting the welfare and hygiene of maternity and infancy. All but six of the states have to date accepted the provisions of the act. In most states the administration will be in charge of the child hygiene divisions of the state boards of health. Plans under which the individual states will administer the funds locally vary with local needs and resources.

Dr. Watters studied medicine at Leland Stanford, Jr., and Johns Hopkins universities, receiving her degree from the latter. In addi-

tion to her services as director of the Bureau of Child Hygiene she has been sanitarian of the Bureau of Social Hygiene in the California State Board of Health and physician to various children's homes and institutions in San Francisco. She has been a contributor to medical and health journals.

SMITHSONIAN INSTITUTION TO HOUSE PUBLIC HEALTH EXHIBIT.

THE National Committee on Exhibits Showing Advances in Sanitary Science has recently been formed in Washington, D. C., for the purpose of collecting and preparing material for a great popular public health exhibit in the capital. The members of the committee include: Surgeon-General H. S. Cumming, United States Public Health Service, chairman; Dr. D. B. Armstrong, National Health Council; Miss Mabel T. Boardman, American Red Cross; Surgeon-General M. W. Ireland, United States Army Medical Corps; Dr. Victor C. Vaughan, National Research Council; Dr. C. D. Walcott, Smithsonian Institution; James A. Tobey, National Health Council, secretary.

Space for the proposed exhibit has been placed at the disposal of the committee by the Smithsonian Institution, which is visited by more than half a million persons annually. Plans are under way to install exhibit material secured from official and voluntary health agencies. The secretary's office is in the national headquarters of the American Red Cross at Washington, D. C.

A BAD LAW.

IN Tasmania the name of a person may be removed from the Register by an order of the Supreme Court or judge thereof, on application by summons taken out in that behalf by the Medical Council, for fraud, felony or misdemeanor or infamous conduct in any professional respect. The name may subsequently be restored by order of the Supreme Court if the Court so determine, and any person whose name has been removed has the right of appeal to the full court. The Tasmanian act, however, contains several clauses of such an extraordinary nature that we cannot refrain from reproducing them in full. Intending practitioners in Tasmania will do well to note them. These clauses are as follows:

"If any registered medical practitioner in active practice, without reasonable excuse (the proof of such reasonable excuse being upon him), refuses or fails to consult with or render professional assistance, in consultation, to any other registered medical practitioner seeking such advice or assistance, he shall be guilty

of an offence and shall on conviction forfeit and pay for each offence a penalty of not less than 50 pounds nor more than 200 pounds.

"The foregoing expression 'reasonable excuse' shall not include any resolution or by-law or any agreement of any company, association or body of persons whatsoever, whether verbal or written."—*Medical Journal of Australia*.

RED CROSS NURSE DISPATCHED BY CHAPTER AIDS EPIDEMIC FIGHT.

DURING a recent epidemic of typhoid at Gilmore, Idaho, a mining camp 17 miles from Salmon, headquarters of the Lemhi County Chapter, the Red Cross came to the assistance of the stricken camp and through the efforts of the public health nurse saved the lives of all but one out of 18 victims. The nurse, Miss Minnie Lunney, took an assistant with her to Gilmore, and all drugs and disinfectants were furnished by the Red Cross chapter.

With the nearest physician 70 miles away and the snow four or five feet deep, the nurse made daily visits to the homes of the patients. As a result the community was brought to a full realization of the value of the public health nurse and an appreciation of what the Red Cross means in time of trouble.—*The Red Cross Courier*.

NOTE.—The Red Cross should not assume that all these lives were saved by the nurse. There was story enough without making extravagant claims.—Editor.

INSTRUCTIVE DISTRICT NURSING ASSOCIATION.

THE month of May showed an increase of work quite unprecedented for the season of the year. May being usually the first month to register the lightening of work, which is characteristic of summer and due to the decrease in respiratory diseases.

Work in May.—There were 2615 new patients admitted, 103 more than in April, while a total of 26,851 visits was made. This increase is attributable not to more cases of any one disease but to a few more cases of many diseases.

Diseases.—There were 91 new patients with pneumonia, a slight increase over those of last month; 132 with measles, a few more than were admitted during April and 56 more than those of May last year.

There were also more cases of cancer and of accidents, i.e., burns, traumatism, fractures and sprains. Again the increase in cancer patients confirms a recent comment on this fact.

There were 103 new cases of diseases of the digestive system, showing a slight increase over those of last month and a marked one over those of last May. There were two new cases of typhoid fever and one new case of encephalitis lethargica.

Preventive Work.—There were more prenatal visits and visits to well babies and well children—these latter follow-up visits for the baby and child health clinics—than were made during any other month of the year, and more well-baby-and-child visits than during May of last year.

The value of this preventive work is shown by the very strikingly low death rate among the babies.—*Monthly Health Bulletin.*

DR. J. W. BABCOCK.

It is a pleasure to find distinguished Americans appreciated by our foreign brethren, and the following tribute paid to Dr. Babcock is so well deserved that it is fitting to reproduce the obituary editorial notice which appeared in *Revista Pellagologica Italiana*.

"With renewed sorrow we announce the death of Dr. J. W. Babcock of Columbia, S. C.

"He was the first to recognize pellagra in the United States and to identify it with Italian pellagra; but he had to struggle long and suffer many bitter checks before the truth announced by him was imposed on the American medical world and pellagra came to form part of official pathology.

"A convinced follower of the theories of Lombroso, he never abandoned them, accepting, however, in part and in so far as true, the newer and most recent doctrines.

"It is due to his studies, to his researches, to his tenacious propaganda with word and pen in articles in the press and in scientific reviews, to his communications before the annual congresses of the American Medical Association or in the biennial meetings of the National Association for the Study of Pellagra, founded and directed by him, that the United States Public Health Service has vigorously enforced and conducted the fight against the new scourge that was already dealing its blows in the southern states, achieving in little more than a decade the present comforting results.

"Justly do the journals of America exalt Dr. J. W. Babcock, the pioneer and the humanitarian, whose fame will grow with time, as well as the rare and perfect gentleman, beloved and esteemed by all.

"We who for so many, many years have had with him—so remote in space, so near in affection—pure ideal scientific relations—we bow reverently in memory of the lost friend, and to him we send the flower of remembrance."

OFFICERS OF THE NEW ENGLAND ROENTGEN RAY SOCIETY.

At the annual meeting of the New England Roentgen Ray Society, held at the Harvard Club, June 2, 1922, the following officers were elected for the years 1922 and 1923: President, Arial W. George, M.D., Boston; vice-president, Ernest L. Davis, M.D., Springfield; secretary-treasurer, Adelbert S. Merrill, M.D., Boston; executive committee, Alexander S. MacMillan, M.D., chairman, Boston; Isaac Gerber, M.D., Providence; Arthur Heublein, M.D., Hartford.

ROYAL CANCER HOSPITAL, GLASGOW.

RECENT contributions to the fund administered by this hospital, amounting to £800, have been received. The Bellahouston Trustees have promised £100 per year for five years. At the present time the funds available only permit of the chemical branch of the plant being used. It is estimated that £1500 should be available each year in order to enable the whole department to operate.

The work of this hospital has been along research lines under the supervision of a committee of which Professors Robert Muir and D. Noël Paton are members.

ELECTION OF DR. R. G. HARRISON.

DR. ROSS G. HARRISON of Yale University has been elected an honorary member of the Royal Academy of Medicine of Turin.—*Science*, June 2, 1922.

A BENEFICENT LAW.

SOME years ago Massachusetts enacted a law providing for the reporting of cases of ophthalmia neonatorum. During 1921 no case of blindness resulted from this disease.

IODINE AS A PREVENTATIVE OF GOITER.

IN the June number of *Minnesota Medicine* appears an editorial in which iodine is advocated as a preventative of goiter. In the argument the prevalence of goiter in Switzerland, the Great Lakes basin and the Cascade Mountain regions is spoken of as furnishing comparatively iodine-free water. Because of the elimination of iodine from table salt through present-day refining the beneficial effects of iodine, according to the writer, are lost. The

work of Marius and Kimball, which appeared in the *A. M. A. Journal*, Vol. 77, No. 14, is cited to show that after the administration of iodine to 2190 Ohio pupils only five goiters developed, although 595 goiters developed in some 7320 untreated cases. Klinger of Zurich substantiated these conclusions.

With these favorable results a warning is given concerning the use of iodine in exophthalmic goiter, for it is well known that over-active goiters are not suitable cases for the administration of iodine.

AN EPOCHAL STEP.

THE New England Division has taken one of the most important steps toward thoughtful promotion of public health work since the peace program was inaugurated, by establishing an advisory service for the benefit of Chapters and Branches.

The Division Manager has been fortunate in winning the interest and active coöperation of leading members of the medical profession, including the chief health officer of each of the five New England States in the Division territory.

Through these men the Chapters and Branches will have the benefit of the best thought available in the field of public health work and the advantage of such guidance as will enable them to function in harmony with the policies of the health authorities of the States, cities and towns, and with the medical profession. This will be of inestimable value in directing Red Cross health work toward the fulfilment of clearly demonstrated needs.—*The Red Cross Courier*, March 4, 1922.

HELP FOR LEPERS.

It is reported that Surgeon-General Cumming is authority for the statement that the hypodermic injection of the ethyl esters of chaulmoogra oil has a beneficial effect on leprosy. One hundred and eighty-three patients have been paroled from the Kalihi Investigating Station in Hawaii, as apparently cured. Only 8% have returned for further treatment. The ethyl esters do not have the irritating effect of the oil itself, and the efficiency seems to be much greater.

SIR BERKELEY MOYNIHAN has presented to the University of Leeds an endowment for an annual award of the Leeds Medical School of a gold medal to the best student of the year in medicine and surgery. In accordance with the donor's wish, the medal will bear the name of William Hey, in commemoration of the work of that great Leeds surgeon.—*The Medical Press*.

Correspondence.

RURAL HEALTH AND HEALTH ENGINEERING SERVICE.

DEERFIELD, MASS., May 29, 1922.

Mr. Editor:

Manufacturers have contributed to inaugurate county farm bureau leagues, knowing that better agriculture means better food supplies and so affects their labor cost. These farming development organizations have been increasingly concerned with health service in rural districts, realizing that success in agriculture is directly connected with human physical efficiency, and more and more business and industrial leaders are becoming interested in rural health in the neighborhood of their shops and factories.

This State has about one physician to every 700, whereas Franklin County has but one to every 925 of its population. The County has then 25 per cent. less medical engineers than the State average, and about one-half of the towns embracing about one-half of the area are without doctors; not only is service in sickness impaired further through the distances and difficulties of travel, but the preventive endeavors and stabilizing influences of such potential health agents are lost to such towns through lack of local and neighborly associations.

The natural advantages of rural life favor health conditions, the comparative isolation of a doctor tries his mettle and favors independence of judgment, but the closer contacts with men of his profession, the ready access to hospital and other facilities and educational advantages are sacrificed. There are marked contrasts between our County Seat and isolated hill-towns and many persons needing constant specialized professional or hospital service are denied it.

Towns in this end of the State which formerly supported one or more doctors are now without any or else served by men whose age and vigor must be at times overtaxed. Some towns where non-resident physicians formerly held office hours are now without that service. We need here and elsewhere throughout rural New England more good county, local and community engineering to meet all the social and economic problems, a quality of sympathy and understanding which comes only from close association with and experience in such sections. The desk chair reach from metropolitan centers and the laboratory habit of an academic control atmosphere develop friction and insulation in their methods of approach. They do not wholesomely orient themselves to gage the rural temper and their contacts are insulated by either a patronizing atmosphere or the bearing of a policeman.

The Rural Health and Medical Service Committee, a voluntary organization of persons who have sensed the needs of rural health betterment and who have had under consideration for over a year these problems, has made some canvass of the field and desires to have in hand a sum of money to extend this canvass and inaugurate a program to promote this necessary service.

Program:

1. To have a bureau of placement of physicians for small towns.
2. To develop sentiment in communities as to the value of physicians as constructive health engineers. This can be done through newspapers, talks at Farm Bureau and other community meetings, and by personal interviews and approaches with interested local spirits and potential leaders.
3. To encourage communities to make larger appropriations for public health work in schools

and elsewhere—raise amounts paid for physical examinations to a mutual self-respecting basis.

4. Arrangement of consultation clinics as frequently as may be practicable to (a) provide for better treatment of especially difficult cases; (b) to supply a need on the part of physicians who do not and who cannot go far away from their own field to meet with specialists of the kind that they could consult with to a mutual advantage.

5. Efforts to promote closer and reciprocal relations between hospital and physicians of the region about who would like to avail themselves of the range of facilities and equipment which such hospitals possess. This should be done in a manner which will safeguard the best standards of work there obtainable, give encouragement to all constructive professional endeavors in equitable and self-respecting ways and mean coöperation of a character to best advance and extend service to the public.

6. Helping individuals who need hospital care to get located and awaken in this way community sentiment to the larger service of the hospital and their responsibilities and obligations for its upkeep.

7. As sectional needs may arise in the future to aid country physicians in the establishment of hospitals where they can have better surveillance of their own patients, be insured their rightful fees, and obtain expert service and advice as they may need.

8. To consult with agents and officials of towns, or of church and charitable trusteeships as to possible modification and adaptation of property, trusts or policies to serve health interests. To study data of records and reports in the endeavor to learn any intent or purpose which would accord with a more modern interpretation of the use of such trusts and promote the broadest possible service for present and pressing needs.

From canvass already made I have found there is some church and parsonage property adaptable or convertible in the furtherance of rural health betterment. Also there exists trust funds whose original purpose is antiquated which might be drafted for health purposes. As instance a certain fund was left to build an old ladies' home, but before a start was made, the greater desirability for a library appeared and the court was asked to permit the use of funds in that manner and that privilege was granted as the need for such a home did not appear to exist. Another town which was left a bequest, the interest of which was to be used to buy books, got permission to use its funds for a building. These instances are cited merely to show the apparent inclination of the court to aid towns in making their bequest funds available for the greatest public good, and undoubtedly many such funds exist which progressive towns and citizens utilized in such ways.

Doctors, as other men, are no better than they are compelled or can afford or are encouraged to be. School physicians are paid only \$15 a year in some places. Ten cents per pupil for a physical examination makes for a poor investment. A remuneration of from \$3 to \$6 apiece might help to solve the problem of securing a resident physician in many a town wishing such, and would insure the quality of service. What town could not make an office hour a week arrangement with a doctor and thus help to put consultation privileges within reach of citizens needing this service? School children are required to have physical examinations. Yonths in rural regions show a high percentage of physical defects.

Under cover of periodic examinations, the conscientious, far-seeing physician has an unusual chance to do constructive health coaching. The work with school children can be utilized to open the way for bringing home to the parents the need of such reconstructive service for their own self-protection, and

this ultimately means a broadening of opportunities for doctors and making rural communities attractive fields for modern practice.

PAUL W. GOLDSBURY, M.D.

DOSES PROPOSED FOR THE UNITED STATES PHARMACOPOEIA, TENTH REVISION.

PHILADELPHIA, PA., MAY 25, 1922.

Mr. Editor:

The sub-committee on Posology of the United States Pharmacopoeia, Tenth Revision, has submitted the report on doses for the new Pharmacopoeia. At the suggestion of the Chairman, Dr. Torald Sollmann, a list of those doses which are new or have been changed are herewith enclosed that they be given publicity in the medical and pharmaceutical press.

Will you kindly submit this material to your readers, if in your judgment, they would be interested in the doses of the forthcoming Pharmacopoeia.

Respectfully submitted,

E. FULLERTON COOK, *Chairman.*

The following list represents changes in the U. S. P. IX doses or doses for newly admitted substances as proposed for inclusion in the new Pharmacopoeia. All other doses remain as at present official. These are submitted for the information of physicians and pharmacists. Any comments should be sent to E. Fullerton Cook, 636 So. Franklin Square, Philadelphia, Pa.

Acidum Benzoicum	1 Gm. (15 grains)
Antimonii et Potassii Tartras	0.003 Gm. (1/20 grain)
Apomorphinae Hydrochloridum	Expectorant, 0.002 (1/30 grain). Emetic, Hypodermic 0.005 Gm. (1/12 grain)
Asafoetida	0.2 Gm. (3 grains)
Atropina	0.0006 Gm. (1/100 grain)
Atropinae Sulphas	0.0006 Gm. (1/100 grain)
Bismuthi Betanaphtholas	1 Gm. (15 grains)
Bismuthi Subcarbonas	1 Gm. (15 grains)
Bismuthi Subgallas	1 Gm. (15 grains)
Bismuthi Subnitras	1 Gm. (15 grains)
Bismuthi Subsaliicylas	1 Gm. (15 grains)
Calcii Chloridum	1 Gm. (15 grains)
Calcii Lactas	1 Gm. (15 grains)
Calumba	1 Gm. (15 grains)
Camphora	By mouth or Hypodermic 0.2 Gm. (3 grains)
Cerii Oxalas	0.6 Gm. (10 grains)
Cubeba	2 Gm. (30 grains)
Colocynthis	0.1 Gm. (1½ grains)
Digitalis	0.1 Gm. (1½ grains)
Extractum Aconiti	0.015 Gm. (¼ grain)
Extractum Cannabis	0.015 Gm. (¼ grain)
Extractum Cascarae Sagradae	0.3 Gm. (½ grain)
Extractum Fellis Bovis	0.4 Gm. (6 grains)
Extractum Hyoseyami	0.05 Gm. (5/6 grain)
Extractum Rhei	0.5 Gm. (8 grains)
Extractum Stramonii	0.02 Gm. (1/3 grain)
Fluidextractum Aconiti	0.06 cc. (1/10 minim)
Fluidextractum Digitalis	0.1 Gm. (1½ minims)
Fluidextractum Ipecacuanhae	Expectorant 0.06 (1 minim) Emetic 1 cc. (15 minims)
Fluidextractum Lobeliae	0.1 cc. (1½ minims)
Fluidextractum Nucis Vomicae	0.1 cc. (1½ minims)
Fluidextractum Podophylli	0.3 cc. (5 minims)
Fluidextractum Spigeliae	4 cc. (1 fluidrachm)
Fluidextractum Tritici	8 cc. (2 fluidrachms)

Fluidextractum Zingiberis	0.5 cc. (8 minims)	Potassi Iodidum	0.3 Gm. (5 grains)
Glyceritum Acidi Tannici	2.5 cc. (40 minims)	Antiluetic 2 Gm.	
Hexamethylenamina	0.3 Gm. (5 grains)		(30 grains)
Hydrargyri Chloridum		Potassii Nitrates	0.3 Gm. (5 Grains)
Corrosivum	0.004 Gm. (1/15 grain)	Pulvis Aromaticus	0.3 Gm. (5 Grains)
Hydrargyri Chloridum		Pulvis Ipecacuanhae et	
Mite	Laxative 0.15 Gm. (2½ grains)	Opii	0.3 Gm. (5 Grains)
Hydrargyri Iodidum		Sanguinaria	0.1 Gm. (1½ grains)
Rubrum	0.004 Gm. (1/15 grain)	Scopolaminae Hydro-	
Hydrargyri Salicylas	Intramuscular 0.06 Gm. (1/10 grain) twice a week.	bromidum	0.0005 Gm. (1/120 grain)
Hyoscyaminae Hydro-		Senna	2 Gm. (30 grains)
bromidum	0.0006 Gm. (1/100 grain)	Sodii Glycerophosphas	0.3 Gm. (5 grains)
Hyoscyamus	0.2 Gm. (3 grains)	Sodii Iodidum	0.3 Gm. (5 Grains)
Infusum Digitalis	6 cc. (1½ fluidrachms)	Antiluetic 2 Gm.	
Infusum Sennae			(30 grains)
Compositum	30 cc. (1 fluidounce)	Spiritus Anisi	1 Gm. (15 grains)
Iodum	0.01 Gm. (1/6 grain)	Spiritus Juniperi	1 cc.
Ipecacuanha	Expectorant 0.06 Gm. (1 grain)	Spiritus Menthae	
Liquor Sodii Glycero-	Emetic 1 Gm. (15 grains)	Piperitae	1 cc. (15 minims)
phosphatis	0.6 cc. (10 minims)	Spiritus Menthae	
Lobelia	0.1 Gm. (1½ grains)	Viridis	1 cc. (15 minims)
Magma Magnesiae	Antacid, 4 cc. (1 fluidrachm)	Stramonium	0.75 Gm. (12 grains)
	Laxative (for children)	Strophanthinum	Daily, mouth or vein,
	15 cc. (4 fluidrachms)		0.0005 Gm. (1/120 grain)
Magnesii Carbonas	Antacid 0.6 Gm. (10 grains)	Strychnina	0.002 Gm. (1/30 grain)
	Laxative 8 Gm. (2 fluidrachms)	Strychninae Nitrates	0.002 Gm. (1/30 grain)
Magnesii Oxidum	Antacid 0.25 Gm. (4 grains)	Strychninae Sulphas	0.002 Gm. (1/30 grain)
	Laxative 3 Gm. (45 grains)	Syrupus Ipecacuanhae	0.75 cc. (12 minims)
Magnesii Oxidum			Emetic 15 cc.
Ponderosum	Antacid 0.25 Gm. (4 grains)	Syrupus Picis Liquidae	(4 fluidrachms)
	Laxative 3 Gm. (45 grains)	Syrupus Pruni	10 cc. (2½ fluidrachms)
Massa Hydrargyri	0.3 Gm. (5 grains)	Virginianae	10 cc. (2½ fluidrachms)
Mistura Glycyrrhizae		Syrupus Sennae	8 cc. (2 fluidrachms)
Composita	4 cc. (1 fluidrachm)	Syrupus Tolutanus	10 cc. (2½ fluidrachms)
Morphinae Hydrochlori-		Syrupus Zingiberis	10 cc. (2½ fluidrachms)
dum	0.01 Gm. (1/6 grain)	Thymol	0.125 Gm. (2 grains)
Morphinae Sulphas	0.01 Gm. (1/6 grain)	Anthelmintic 2 Gm.	
Nux Vomica	0.1 Gm. (1½ grains)		(30 grains)
Oleoresina Aspidii	Single Dose, once a day, 4 Gm. (1 drachm)	Divided into 3 doses.	
Oleoresina Capsici	0.015 Gm. (¼ grain)	Thyroideum Siccum	0.06 Gm. (1 grain)
Oleum Anisi	0.1 cc. (1½ minims)	Tinctura Aconiti	0.6 cc. (10 minims)
Oleum Aurantii	0.1 cc. (1½ minims)	Tinctura Belladonnae	0.6 cc. (10 minims)
Oleum Cari	0.1 cc. (1½ minims)	Tinctura Cannabis	1 cc. (15 minims)
Oleum Carophylli	0.1 cc. (1½ minims)	Tinctura Digitalis	1 cc. (15 minims)
Oleum Cassiae	0.1 cc. (1½ minims)	Tinctura Ferri Chloridi	0.7 cc. (10 minims)
Oleum Chenopodii	1.0 cc. (15 minims)	Tinctura Gelsemii	0.3 cc. (5 minims)
Oleum Coriandri	0.1 cc. (1½ minims)	Tinctura Myrrhae	2 cc. (30 minims)
Oleum Foeniculi	0.1 cc. (1½ minims)	Tinctura Nucis Vomicae	1 cc. (15 minims)
Oleum Juniperi	0.1 cc. (1½ minims)	Tinctura Opii	0.6 cc. (10 minims)
Oleum Lavandulae	0.1 cc. (1½ minims)	Tinctura Opii Deodorati	0.6 cc. (10 minims)
Oleum Limonis	0.1 cc. (1½ minims)	Tinctura Stramonii	0.75 cc. (10 minims)
Oleum Menthae		Tinctura Veratri Viridis	1 cc. (15 minims)
Piperitae	0.1 cc. (1½ minims)	Valeriana	0.75 Gm. (12 grains)
Oleum Menthae Viridis	0.1 cc. (1½ minims)	Veratrum Viride	0.1 Gm. (1½ grains)
Oleum Myristicae	0.03 cc. (½ minim)	Zingiber	0.5 Gm. (8 grains)
Oleum Pimentae	0.1 cc. (1½ minims)		
Oleum Rosmarini	0.1 cc. (1½ minims)		
Oleum Sassafrae	0.1 cc. (1½ minims)		
Oleum Thymi	0.1 cc. (1½ minims)		
Paraldehydum	4 cc. (fluidrachm)		
Phosphorus	0.0006 Gm. (1/100 grain)		
Pilocarpinae Hydro-			
chloridum	0.005 Gm. (1/12 grain)		
Pilocarpinae Nitrates	0.005 Gm. (1/12 grain)		

(It should be remembered that doses were introduced into the Pharmacopoeia at the request of many physicians and pharmacists. After careful consideration, it was held advisable to introduce only "average approximate" doses, i.e., doses such as are in widespread use by the profession and which are ordinarily effective. The Pharmacopoeia expressly states that there is no intention of suggesting to the physician that these doses are obligatory or should not be exceeded whenever in his judgment this is advisable. These doses are of much assistance to the pharmacist also, and have helped to protect patients against errors.—Ed.)

NEW HAMPSHIRE MEDICAL SOCIETY.

Mr. Editor:

As a delegate from the Massachusetts Medical Society to the sister State of New Hampshire, I

wish to render an acknowledgment of the honor conferred and report presence at the specified conclave.

On May 17th and 18th, Dr. Stone of Haverhill and I visited Concord, N. H., in attendance at the One Hundred Thirty-first Annual Meeting of the New Hampshire Medical Society.

There was present a large gathering of medical brethren, large in comparison with the total membership of the association. The enthusiasm at the meetings was real, and topics were freely discussed. The program was somewhat protracted conformably to the two days' limitation of time.

The President's address dealt with local hospital problems. Some of the papers proffered may be mentioned, but upon all there cannot be dilation.

Interesting data presented by Dr. Butterfield, of Concord, emphasizing the numerous causes of intestinal obstruction, aroused much discussion, pro and con, as to whether wisdom dictated speedy exploratory operation of a dilatory deference to cardinal symptoms, thus allowing a nearer approach to a more exact pre-operative diagnosis.

Dr. Edwin Place, of Boston, gave a most interesting talk on his specialty of contagious diseases, mentioning the use of convalescents' sera employed in scarlet fever and measles cases.

Dr. Frank Richardson of Boston delivered a scholarly résumé of all anaesthetic agents employed in minor surgery.

A paper on hygienic habits and sanitary customs relative to school children was frankly discoursed. The speaker maintained that the school-age and pre-school-age conditions were largely responsible for the deplorable showing of United States adolescents in the physical examinations of the recent war draft.

Facts relative to the foundation of the Dartmouth Medical School, and the questionable maintenance of the same, were presented by Dr. Frederick P. Lord, of Hanover. It was not a presentation for propaganda purposes, but the manifestation of a desire to allow the people of New Hampshire, laity and profession, to become forewarned as to exact conditions, so that a wise decision may be made as to Dartmouth Medical School attaining a Class "A" standard, or becoming a defunct institution.

Not to mention, at least, one more address would seem inadequate to the occasion, for Dr. Francis C. Wood of the Institute of Cancer Research of New York City convincingly arrayed his problems to date and gave information most valuable to all.

The social features in addition to the requisites for the general meetings were most commendable, and the brethren were always very hospitable and friendly.

Cordially yours,

W. E. CURRIER,

Member Massachusetts Medical Society.

NOTICE OF EXAMINATION FOR ENTRANCE INTO THE REGULAR CORPS OF THE UNITED STATES PUBLIC HEALTH SERVICE.

Examination of candidates for entrance into the Regular Corps of the United States Public Health Service will be held at the following-named places on the dates specified:

At Washington, D. C., July 10, 1922; at New York City, July 10, 1922; at Chicago, Illinois, July 10, 1922; at San Francisco, Cal., July 10, 1922, at New Orleans, La., July 10, 1922.

Candidates must be not less than twenty-three nor more than thirty-two years of age, and they must have been graduated in medicine at some reputable medical college, and have had one year's

hospital experience or two years' professional practice. They must pass satisfactorily, oral, written, and clinical tests before a board of medical officers and undergo a physical examination.

Successful candidates will be recommended for appointment by the President with the advice and consent of the Senate.

Requests for information or permission to take this examination should be addressed to the Surgeon General, United States Public Health Service, Washington, D. C.

H. S. CUMMING, *Surgeon General.*

UNITED STATES CIVIL SERVICE EXAMINATIONS.

Toxicologist, \$3,600 to \$5,000 a year. Associate Toxicologist, \$2,500 to \$3,600 a year. Assistant Toxicologist, \$1,800 to \$2,500 a year. Receipt of applications to close July 3, 1922.

The United States Civil Service Commission announces open competitive examinations for these positions.

PATHOLOGY AND DIAGNOSIS OF TUMORS.—A course in the pathology and diagnosis of tumors will be given by Professor William H. Woglom, M.D., at the Institute of Cancer Research, 1145 Amsterdam Avenue, in connection with the summer session of Columbia University, New York, beginning on July 10, 1922, and lasting for six weeks. Classes will be held daily, except on Saturday, from 2 to 4 p. m. The fee for the course will be \$46.00. Application should be made to the Director of the Summer Session, Columbia University, New York.

DR. FRANK R. SEDGLEY has removed from Fox Hills Hospital, Staten Island, New York, to U. S. Veterans' Hospital, No. 65, St. Paul, Minnesota.

NATIONAL BOARD OF MEDICAL EXAMINERS.

The dates for the next two examinations of the National Board of Medical Examiners are as follows: Part I and II, June 19, 20, 21, 22, and 23, 1922. Part I and II, September 25, 26, 27, 28, and 29, 1922.

Applications for the June examination should be in the Secretary's office not later than May 15th, and for the September examination not later than June 1st. Application blanks and circulars of information may be had by writing to the Secretary, Dr. J. S. Rodman, 1310 Medical Arts Building, Philadelphia.

RECENT DEATH.

DR. FRANK ELMORE CONSTANS, of Brockton, Mass., died suddenly Monday, May 29, 1922, at his home, of angina pectoris, from which he had suffered occasionally the past three years. His death will be greatly felt in the city because he had practiced there thirty-five years and had acquired a large and lucrative business.

He was born in Blue Earth, Minnesota, August 2, 1866, was a graduate of Carleton College and the Hahnemann Medical School of Philadelphia. He was a member of the Massachusetts Medical Society, also of the American Medical Association. He is survived by his wife and adopted daughter.

The Boston Medical and Surgical Journal

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The Massachusetts Medical Society.

THE SHATTUCK LECTURE.*

THE TREATMENT OF DIABETES MELLITUS.

By ELLIOTT P. JOSLIN, M.D., BOSTON.

WILL THE DURATION OF DIABETES CONTINUE TO INCREASE?

THE average known duration of the fatal cases of diabetes in the city of Boston between 1895 and 1913 was 3.3 years; during 1915 it was 4.3 years, and in 1920 it was 5.3 years. No published statistics show better the improvement which has taken place in the treatment of diabetes in the last decade. This improvement is to be credited to the efforts of the average Boston doctor. An analysis of my own series shows similar results. Thus, prior to June, 1914, the average duration of life of my fatal cases was 4.8 years, and since June, 1914, it has been 6 years. Can this improvement go on? Can the present treatment, that is, particularly the dietetic, progress still further? It is the purpose of this lecture to prove that this is possible as well as probable, to indicate how this can be brought about by private and public endeavor, and, more impor-

tant still, to explain how even the disease itself to a large extent can be prevented.

Returning to the increase from three to five years in the duration, it can be said that it is illogical to expect this steadily rising curve abruptly to change direction. My own statistics appear less striking at first glance, but in reality are quite as convincing. (Table 1.) If one closely examines the duration of life in the individual decades of onset, it will be found that in the first, which is the decade in which diabetes has been considered to be most severe, the duration has actually doubled. Again one can say that such an upward curve is not likely all at once to flatten out. Reasons for so great an increase in this decade may be that though the disease in these little patients is more severe, they are the ones upon whom the most energetic therapeutic efforts are expended, and possibly expended earlier in the course of the disease because of more timely diagnosis. This earlier diagnosis does not invalidate the statistics, because the duration has invariably been computed from date of onset of symptoms rather than from date of diagnosis. These two factors, the probability that a steady curve of increase will continue and the remarkably great increase in duration of the severest type of cases, are overshadowed by a third, namely, the length of life of those cases who have actually lived beyond the average period.

*Presented at the Annual Meeting of the Massachusetts Medical Society, Boston, June 13, 1922.

This number of diabetic individuals who have lived in excess of the space of years attained by my entire group of fatal cases is

TABLE NO. 1.—Duration of Life in Fatal Cases of Diabetes Arranged in Decades Before and After June, 1914.

Decades of Onset Years	Before June, 1914		After June, 1914	
	No. of Cases	Duration Years	No. of Cases	Duration Years
0-9	25	1.2	47	2.7
10-19	39	2.9	69	3.3
20-29	80	3.9	162	5.3
40-59	137	6.9	216	8.1
60-89	50	4.5	103	6.1
0-89	331	4.8	597	6.0

considerable and can be instructively demonstrated in several ways. Thus, in Table 2 are 97 cases, of whom 7 in the first decade lived beyond 5 years, 10 in the second beyond 6 years, 26 in the third and fourth beyond 10 years, 36 in the fifth and sixth beyond 15 years (which is within 6 years of the average expectation of life for their decades), and in the seventh decade there were actually 18 who reached or exceeded the average normal expectation of life for this period. In Table 3 are shown 79 cases (23 per cent.) out of the total number before 1914 who lived above the average period of 6 years, which was that for the cases after 1914, and 186 cases (31 per cent.) out of the total number since 1914 who did the same. If one examines the table by individual decades it will be found without exception that the percentage surviving the 6-year average was greater in the later than in the earlier series. The range of duration for all the fatal cases before and after June, 1914, is shown in Table 4.

Regretfully it must be acknowledged that even in recent years some cases have died within a few weeks of onset. These are the deaths which must be eliminated if the average duration is to be strikingly increased, and fortu-

TABLE NO. 2.—Fatal Cases of Diabetes of Unusual Duration.

Decades of Onset Years	Duration over Years Specified Below	No. of Cases
0-9	5	7
10-19	6	10
20-29	10	26
40-59	15	36
60-69	11	18

nately this is an easy task. The figures which show the maxima of duration raise our hopes.

The results portrayed in Tables 2, 3 and 4 are the encouraging averages which we should

all try to reach with our cases. The general averages are such because of poor treatment; the higher averages represent better treatment. This is not all that may be expected, because the treatment which has led to this improved duration was the type of treatment of a decade, more or less, ago. Furthermore, no attempt has been made to include living cases, which, if it was done, would swell the figures still more. In the light of our present knowledge of diabetes who will venture to predict the life of the patient who develops the disease today?

In 1913 the writer published a paper with the title of "Diabetic Standards."* Of the eight cases cited at that time all outlived the present average duration for corresponding decades of onset, but it is perfectly obvious that there are three of the number, Cases Nos. 10, 74 and 354, in the earlier decades, who could be replaced easily by many others today who have lived for longer periods of time and were originally more severe. It is also plain that (1) what was termed severe diabetes in 1913 would be moderate diabetes today, (2) that the patients, though carefully treated, were not long sugar free, and (3) that acidosis was present in three-fourths of the cases. Today one would hesitate to publish as a model a case with sugar in the urine, and would never include in the list one with acidosis.

NEEDLESS DIABETIC DEATHS.

The needless mortality in diabetes is unfortunately greater than we realize. All classify as accidental the death of the little boy, Case No. 1266, following collision with an automobile while sliding down hill, but it is not so well understood that there are many other accidental deaths. The task is a melancholy, though always instructive, one, to study the causes of death in any disease, but particularly is this true of diabetes. Patients who have pneumonia, tuberculosis and cancer usually die of pneumonia, tuberculosis and cancer, but diabetics seldom die of their disease *per se*, but of complications which are universally recognized as largely preventable—coma, gangrene, infections. Deaths from inanition in diabetes represent more nearly the disease itself, though by no means is this the invariable rule. And it is because these complications are preventable that it is profitable to study them, to investigate why they occur, to point out how they can be avoided, and thus to prolong the life of the diabetic. In a way this attacks the problem in a negative rather than in a positive way, but this method has and will continue to produce useful results, and indeed constitutes a fourth reason for believing that treatment will continue to improve.

*Amer. Jour. Med. Sci., 1913, 145, p. 474.

Table No.3 Percentage of Fatal Cases and Average Duration of Same Who Outlived
an Average Period of 6 Years. Arranged by Decades for the Periods
Before and After June, 1914.

Decades of Onset	June 1914					
	Before			After		
	Cases		Average Duration	Cases		Average Duration
	No. of All Cases in Each Decade	Percentage in Decade	Years	No. of All Cases in Each Decade	Percentage in Decade	Years
0- 9	0	0	0	3*	6	7
10-19	3	8	10	7	10	8
20-29	3	9	20	15	18	12
30-39	11	24	9	30	38	13
40-49	24	21	13	58	53	11
50-59	37	47	11	72	57	11

* Case No. 687 is omitted as the duration of life was 33.7 years.

Coma is the chief complication, and coma cannot be otherwise than largely preventable. Indeed, I will go so far as to say that the diabetic who dies of coma uncomplicated by infections dies needlessly. One per cent. of the cases at the New England Deaconess Hospital die of it, and it constitutes but one-third of the total deaths. Outside of the hospital the majority of diabetics succumb to it. When coma does occur in a hospital it is seldom *de novo*; the patients enter either with it or in a stage of severe acid poisoning. The marked reduction in the diabetic death rate in hospitals is almost entirely due to the prevention of coma. That nearly all diabetics who die in the first year of their disease die of coma is good proof that it is avoidable, because the first year of the disease should be the safest.

Anyone who sees or has reported to him many deaths from diabetic coma becomes ap-

palled at their needlessness. A boy, Case No. 2090, is told to eat everything and in two days is in coma. A diabetic, Case No. 44, goes on a drunk, and as he emerges from alcoholic coma he lapses into diabetic coma. Deaths like these are not far removed from manslaughter and suicide. Another diabetic boy, Case No. 1870, amenable to treatment, drops out of medical supervision, coma appears, and he dies in the tenth month of the disease, though from other cases it is reasonable to conclude he could have lived at least five years. Two young adults, Case Nos. 2389 and 2401, refuse to submit to dietetic treatment and die respectively in seven and six months after the onset of the disease. Deaths like those just recounted can be traced to the advice of the laity or irregular practitioners, and often to the patients themselves. For all such deaths one feels regret, but not the keen concern excited by deaths under trained supervision, yet not quite free from errors of judgment. All these deaths most commonly occur when the diet of a patient is suddenly changed. When the carbohydrate is restricted and protein and fat simultaneously increased, death from coma may take place the same week. How many such cases! Nearly all of us have one or more such sorrowful deaths to our discredit. It is therefore well to hold to the rule in severe, long-standing, complicated, obese and elderly cases, as well as in all cases with acidosis, to make changes in the diet gradually and not suddenly or radically.

Nearly all cases of coma following alterations in diet can be traced to overfeeding with

TABLE No. 4.—Range in Duration of Fatal Cases of Diabetes Before and After June, 1914.

Decades of Onset	Range in Years	
	Before 1914	After 1914
Years		
0 - 9	0.06 - 6	0.3 - 34
10 - 19	0.1 - 21	0.5 - 16
20 - 29	0.3 - 35	0.1 - 30
30 - 39	0.6 - 13	0.3 - 37
40 - 49	0.3 - 25	0.3 - 22
50 - 59	0.3 - 20	0.3 - 24

fat, combined with diminution of carbohydrate. Sometimes the fat is taken in obvious excess, as happened when a diabetic, Case No. 1511, of long duration, living with little dietetic restriction, went to a fashionable hotel, suddenly decreased carbohydrate and made up by indulging to the limit in *tarded* mushrooms. The same result occurred when a fairly well nourished but severe diabetic, Case No. 310 of former days, 1910, who had frequently shown acidosis, was taken seasick on a steamer, retained no food, lived on her own fat and secured insufficient carbohydrate from the breakdown of body protein to prevent coma. Remember that a little carbohydrate as such goes a long way toward preventing coma in a mild or moderately severe case of diabetes, because it is helped by that other carbohydrate formed from protein; but in a severe case when even carbohydrate from protein is not well tolerated, and the high protein is also contraindicated because of its stimulating action on the metabolism, beware before you expose a diabetic to a high fat diet, whether endogenous or exogenous.

Then there are the cases of coma resulting from operations with ether as an anesthetic. If you do wish to use ether it is a good plan to be as rapid and as skilled as the Mayos and to use as little ether as their anesthetists. Gas and oxygen and spinal anesthesia have been shown to be so superior to ether that in the larger hospitals in Boston it is not the custom to employ it in operations upon diabetics. While operation in a properly prepared diabetic has ceased to cause alarm, one does not seek recourse to surgery unless indication is clear, because even after the successful removal of a fibroid with gas oxygen anesthesia a patient may, though by no means always, lose tolerance for carbohydrate. (Case No. 2174.)

The sudden introduction of fasting combined with alcohol in liberal quantities may lead to anuria and death in diabetics with susceptible kidneys. Such patients appear to die too soon for actual coma to develop. (Case Nos. 1015 and 2546.)

Next to coma as a preventable cause of death stands gangrene. The chiropodists know the dangers of infections in diabetic feet quite as well as, if not better than the physicians, but the unfortunate patients do not. In the first place, injuries to the feet should not occur. Never allow one of your diabetic patients to develop gangrene ignorantly. Your warning and admonition should penetrate so deeply the souls of your cases that if such a catastrophe should ever occur the unhappy patient will feel compelled to say: "Doctor, you warned me about injury to my feet, about the dangers in cutting corns, toe nails, about blisters from

new shoes or old shoes with poor linings, about nails in my shoes, flat foot plates and hot water bags. You are not to blame for my present condition." The time spent upon such homely advice yields fabulous returns in gratitude from patients and in your own peace of mind when you find that those coming for treatment of gangrene are seldom patients who were formerly under your care. I wish I could say *never* instead of *seldom*, but I cannot, because one of my own cases of 11 years' duration, Case No. 600, recently died as the result of a simple paronychia with subsequent gangrene of the hand, and another, Case No. 177, now has gangrene resulting from a hot water bag. But let us spend no more time on such sad themes but rather seek to prevent future needless deaths in this disease by considering the treatment of gangrene which is employed today.

If injuries do develop treatment should be immediate, and the patient should be considered as on the verge of death and should be placed in the most favorable situation for recovery. Over and over again, good results can be attained by careful medical treatment and years of useful life saved. It is true that occasionally diabetic gangrene develops when there has been no external trauma, but this is rare. Elevation of the foot, massage, quick douching with hot and cold water, all will promote re-establishment of circulation and yield surprisingly good results. If the arteriosclerosis is extreme or if the vessel is actually obstructed nothing can be done in the end except amputation. Here again the moderate restriction of diet instead of extremes in diet may save the patient.

Many of the needless deaths due to diabetic gangrene were formerly connected with the anesthetic employed. In such cases I am convinced that spinal anesthesia or gas oxygen anesthesia has greatly lessened mortality. Some patients may survive the use of ether and a still smaller number may survive chloroform, but these latter two methods of anesthesia are dangerous.

These two groups—coma and diabetic gangrene—are the chief causes of diabetic deaths. Pneumonia, tuberculosis, cancer, old age, all occur with diabetes as with any group of patients, and it is true resistance to disease is undoubtedly lessened in the diabetic individual, but such causes of death should not distract our attention from the main causes—coma and gangrene. On the other hand, one should not be oblivious to the effects of under-nutrition which underlie and are responsible in large degree for the non-resistance of diabetic patients in infections. Few individuals ever die from pure starvation. They succumb before this is reached, because their general

nutrition is lowered. Occasionally a patient with diabetes dies from undernutrition, and there are more such today than heretofore, simply because formerly patients died at an earlier stage of the disease. Death from coma is unjustifiable. It may be that a death from undernutrition is unjustifiable, and evidence is rapidly accumulating toward such a conclusion.

THE TREATMENT OF A DIABETIC CASE.

Let us picture a patient coming to the office complaining of the classical symptoms of diabetes: thirst, frequency and unexplained fatigue of a few weeks' standing. Physical examination reveals little save that the patient has lost some weight, that he was overweight at onset, and that his urine contains, say, 3.0 to 6.0 per cent. of sugar. What method shall be pursued to relieve the patient of his dis-

TABLE No. 5.—Diabetic Diet. List with Composition of Essential Foods.

Water, clear broths, coffee, tea, cocoashells and cracked cocoa can be taken without allowance for food content					
FOODS ARRANGED APPROXIMATELY ACCORDING TO CONTENT OF CARBOHYDRATES					
	5%	10%	15%	20%	
* Reckon average carbohydrate in 5% veg. as 3%—of 10% veg. as 6%.					
VEGETABLES (fresh or canned)	1%-3%	3%-5%	10% *	15%	20%
	Lettuce	Tomatoes	Str. Beans	Green Peas	Potatoes
	Cucumbers	Brussels	Pumpkin	Artichokes	Shell Beans
	Spinach	Sprouts	Turnip	Parsnips	Baked Beans
	Asparagus	Water Cress	Kohl-Rabi	Canned	Green Corn
	Rhubarb	Sea Kale	Squash	Lima Beans	Boiled Rice
	Endive	Okra	Beets		Boiled
	Marrow	Cauliflower	Carrots		Macaroni
	Sorrel	Egg Plant	Onions		
	Sauerkraut	Cabbage	Green Peas		
	Beet Greens	Radishes	canned		
	Dandelion	Leeks			
	Greens	String Beans			
	Swiss Chard	canned	Watermelon	Raspberries	Plums
	Celery	Broccoli	Strawberry	Currants	Bananas
Mushrooms	Artichokes	Lemons	Apricots	Prunes	
	canned	Cranberries	Pears		
		Peaches	Apples		
		Pineapple	Huckleberry's		
		Blackberry	Blueberries		
		Gooseberry's	Cherries		
		Oranges			
FRUITS	Ripe Olives (20% fat)				
	Grape Fruit				

1 gram protein,	4 calories.	1 kilogram=2.2 pounds.
1 " carbohydrate,	4 " 30 grams g or cubic centi-	
1 " fat,	9 " meters c.c. = 1 ounce.	
6.25 " protein contain 1g. nitrogen.	A patient "at rest" requires	25 calories per kilogram

(30 grams) 1 oz.	CARBOHYDRATES	PROTEIN	FAT	CALORIES
CONTAIN APPROXIMATELY	G.	G.	G.	
Oatmeal, dry wgt.	20	5	2	118
Shredded Wheat	23	3	0	104
Unseeded Biscuits, two	10	1	1	63
Cream, 40% . . .	1	1	12	116
" 20% . . .	1	1	6	62
Milk . . .	1.5	1	1	19
Brazil Nuts . . .	2	5	20	208
Oysters, six . . .	4	6	1	49
Meat (cooked, lean)	0	8	5	77
Chicken (cooked lean)	0	8	3	69
Bacon . . .	0	6	15	155
Cheese . . .	0	8	11	131
Egg (one) . . .	0	6	6	78
Vegetables 5% group	0	1	0.5	0
Vegetables 10% group	2	0.6	0	10
Potato . . .	6	1	0	28
Bread . . .	18	3	0	84
Butter . . .	0	0	25	225
Oil . . .	0	0	30	270
Fish, cod, haddock (cooked)	0	6	0	24
Broth . . .	0	0.7	0	3

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comfort, restore his strength, and cheek further loss of weight? Practical agreement exists that these ends are best attained by a diet which renders the urine sugar free and under-nourishes the patient. There are also some who further insist that under-

TABLE No. 6.—Test and Maintenance Diabetic Diets.

DIABETIC DIETS

Form J. 4. Thomas Groom & Co., Inc., 105 State St., Boston, Mass.

Name of Diet	Test Diets					Maintenance Diets					Diets with which to become Sugar free				
	Shredded Wheat	Unseeded Wheat	Potato	Bread	Egg	Orange	Vegetable 5%	Carbohydrate (C)	Protein and Fat (PF)	Weight in grams	Food	Weight in grams	Food	Weight in grams	Food
1	1	1	210	90	120	300	300	300	300	300	300	300	300	300	300
2	1	1	120	90	120	300	300	300	300	300	300	300	300	300	300
3	1	1	90	90	120	300	300	300	300	300	300	300	300	300	300
4	1	1	90	90	120	300	300	300	300	300	300	300	300	300	300
5	1	1	90	90	120	300	300	300	300	300	300	300	300	300	300
6	1	1	90	90	120	300	300	300	300	300	300	300	300	300	300
7	1	1	90	90	120	300	300	300	300	300	300	300	300	300	300
8	1	1	90	90	120	300	300	300	300	300	300	300	300	300	300
9	1	1	90	90	120	300	300	300	300	300	300	300	300	300	300
10	1	1	90	90	120	300	300	300	300	300	300	300	300	300	300
11	1	1	90	90	120	300	300	300	300	300	300	300	300	300	300
12	1	1	90	90	120	300	300	300	300	300	300	300	300	300	300

nutrition be pushed as far as may be necessary to bring the blood sugar to normal.

DIET CARD.

The more concrete one's directions to a diabetic the more likely they are to be followed; likewise the easier it is for the doctor to discover the severity of the case, and later to see why this diet has worked well and that diet worked poorly. It is well nigh impossible to correct the diet unless the patient is following some definite plan, eating a certain daily total of carbohydrate, protein, and fat. It is impossible for the patient to play his part and to follow the plan unless we make it simple. This is the reason why card after card of directions for patients has been tried. This also explains why whole numbers instead of decimals have been employed in computing the food values of the diet, and why the dietetic principles once on the reverse of the original card have been replaced by routine, but not inflexible, schedules of diet.

Fourteen years ago a chart was prepared in which vegetables and fruits were divided into 5 per cent., 10 per cent., 15 per cent. and

20 per cent. group). By 1914 this had grown to include a table of carbohydrate, protein, fat and caloric values for the short list of necessary foods, and in 1917 this table was moulded by experience and the compulsion of saving time into a series of Test Diets with which to make patients sugar free. These Test Diets served their purposes so well that a year ago I began experimenting with a progression of Maintenance Diets for building up a satisfactory permanent diet for the patient. Experience shows that these scheduled diets are easily used and modified by practitioners and patients who have not the time to work out the principles as formerly stated. They systematize treatment, shorten hospital stay, by the greater ease of education, and facilitate after-care.

Since there is quite general agreement on the allowance of protein being maintained at about 1.0 gram per kilogram body weight, decreasing to a lower figure in very severe cases and to a higher in children, the diets have been arranged with this in view. On the other hand the friendly rivalry of the hour runs over the low carbohydrate high fat ratio versus the high carbohydrate normal fat attempt. The latter policy being my own preference underlies the following system. Thus the prime facts, the foods and their values, the test diets with which to make the patient sugar free, and the maintenance diets, by which he can be permanently nourished, are easily printed on one card. During this last year this diet scheme has been deliberately submitted to tests in preparation for this lecture, and though it is by no means ideal it has proven so much more satisfactory to doctors, nurses, and patients, than methods which the writer has formerly employed that he ventures to recommend it for wider application, criticism and eventual improvement.

The principles adopted in compiling these diets have been to increase the carbohydrate approximately 10 grams from day to day, and at the same time to introduce a moderate amount of protein and fat in such proportions that it would be unlikely that the protein would exceed 1 gram per kilogram body weight of the patient, or that the fat would be disproportionately high. Thus, if one examines the Maintenance Diets for the twelve days, it will be noted that a patient weighing 60 kilograms would be receiving at the end of twelve days 30 calories per kilogram body weight. This would be divided up between carbohydrate 155 grams, or approximately half of the normal amount, which such an individual would take in health, about the same amount of protein as in health, namely 1.25 grams per kilogram body weight, and the balance of the diet in fat, representing about twice the ordinary amount of fat which such an individual would eat. The

typical patient coming for treatment would be placed upon Test Diet 1 and thereafter progress daily through the various Test Diets. Becoming sugar free upon Test Diet 5 he would begin with Maintenance Diet C1PF1 and increase steadily from day to day until the end of the series. Repeatedly this schedule has been followed and patients, whose tolerance for carbohydrate was supposed to be low, finally have been able to receive the full Maintenance Diet of the twelfth day. More often it has been necessary to individualize treatment. Patients who have had the disease for some time but have relapsed and show sugar would be placed upon a Test Diet, approximately corresponding with the carbohydrate which they reported they had been taking, or when this was unknown upon that Test Diet which corresponded in quantity of carbohydrate to the quantity of sugar which was being excreted in the urine during the twenty-four hours.

Frequently patients would become sugar free, or almost sugar free, on the second, third, or fourth Test Diet. When this was recognized such patients were promptly transferred to Maintenance Diets containing carbohydrate of approximately equivalent proportions, thus saving several days' treatment. More and more it has been found possible to use this method. On the other hand, the exact method as prescribed has so often led to a carbohydrate tolerance far higher than at first was conceived possible that there is always hesitation in departing from the routine of the card. Very few patients following this system of treatment require fasting to become sugar free.

Contra-indications arise with any plan of routine treatment and they occur with cases such as described on the writer's earlier card: severe, long-standing, complicated, obese, and elderly cases, as well as all cases with acidosis. Such individuals should be carefully observed and it may be desirable to proceed no farther than Test Diet 4, and then follow it with Maintenance Diet C3PF3, postponing making the patient sugar free for a few days longer. Account is also taken of these dangers in the plan of treatment advocated by Newburgh and Marsh. They have adopted as a routine for their patients a diet with a caloric value which does not fall below 1000 calories or about half a normal ration. The continued use of a low caloric diet will lead to most any patient becoming eventually sugar free. This principle of dependence upon partial caloric restriction has worked especially well in elderly cases which have come for treatment of diabetic gangrene. With these no attempt has been made at desugarization within a short period, but reliance has been placed upon partial nutrition to accomplish this during the few weeks' hospital stay.

The reasons for the treatment prescribed should be made real to the patient from the very start. It should be visibly demonstrated to him that the quantity of sugar which he is excreting amounts to a pound, more or less, in twenty-four hours, and as his diet is curtailed he should be shown that the sugar in the urine decreases. The quantity of sugar and starch in the common foods which he is to eat or not eat, but will see constantly before him, should be impressed upon him. He should learn that a large apple weighs 300 grams (10 ounces) and contains 3 tablespoonfuls of sugar, that a moderate sized apple contains 2 tablespoonfuls, and that a small apple weighs about 100 grams, almost a quarter of a pound, and contains 1 tablespoonful of sugar, the same amount as in a medium-sized orange. It is worth while to set forth the dangers of bread by comparing the 18 grams carbohydrate in 30 grams (1 ounce), with the same amount which is contained in 540 grams (18 ounces) of 5 per cent. vegetables, or even 900 grams of lettuce. It takes but a moment to point out that in a

Unecda bisenit are 5 grams of carbohydrate, in a Trisenit 8 grams, and in one Shredded Wheat bisenit 23 grams, that an egg has 6 grams of protein and 6 grams of fat. The patient may not learn all the food values, but he must be taught what kind of food he is to eat, what it weighs, or its size. He must be given specific directions. If he does not know but one 5 per cent. vegetable, let him live upon that until he learns another. The following Tables 7, 8, 9, 10 and 11, illustrate the practical application of the treatment described to specific cases.

Before leaving the subject of these Tests and Maintenance Diets may I report one ambulatory case. Case No. 2603, a man, 52 years of age, came to the office upon April 21, 1922, showing 7.0 per cent. of sugar in the urine. He did not wish to go to the hospital and was given the Test and Maintenance Diet card and told to begin with Test Diet 1, and progress daily until he became sugar free, or reached Test Diet 5. On April 26, after a day upon Test Diet 5, the urine contained 0.2 per cent. of sugar and he was transferred to Maintenance

Table No. 7 Chart Illustrating Simplicity of Treatment of Diabetes with Test and Maintenance Diets

Case No. 2343 Age at Onset -- August, 1921 -- 20.10 years

Date	Sugar		Diet Ordered Test or Maintenance	Carb.	Diet Calculated		Weight kilograms net
	Urine %	Blood %			Prot.	Pat. Cal.	
1921							
Sept.							
13		0.48 ¹					64
14	9.5			65	27	0	368
15	4.8		T. D. 1	189	89	15	1247
16	1.0		T. D. 2	102	58	0	640
17	0.5		T. D. 3	64	33	0	388
18	0.1		T. D. 4	36	27	0	252
19	0	0.07	T. D. 5	15	5	0	80
20	0		C ₂ PF ₂	27	13	18	302
21	0		C ₃ PF ₃	32	24	24	440
22	0		C ₅ PF ₅	52	32	53	813
23	0	0.08	C ₇ PF ₇	73	52	68	1112
24	0		C ₈ PF ₈	85	63	87	1375
25	0	0.10	C ₉ PF ₉	98	66	93	1483
26	0		C ₁₀ PF ₉	107	65	87	1471
27	0		C ₁₁ PF ₉	133	71	93	1653
28	0		C ₁₂ PF ₉	149	72	93	1701
1922							
Mar.							
22	0	0.13	C ₁₂ PF ₁₂	155	80	99	1831
May							
3	0	0.14	C ₁₂ PF ₁₂	155	80	99	1831
							62.5

¹ Taken after a meal

The only orders written for the patient were those between the lines of the above table

Table No. 8 One Day of Fasting Required to Make Patient Sugar-free

Case No. 2604 Age at Onset -- January, 1922 -- 18.9 years

Date	Di-a-netic Acid	Sugar		Blood Fat	Diet Ordered Toat or Maintenance		Diet Calculated Prot., Fat	Cal.	Weight kilograms net
		Urine %	Blood %						
1922									
April									
22	--	8.0							54.4
23	-	7.5			67	27	9	376	
24	0	7.5	0.28 ¹	2.63		189	89	15	124
25	0	4.3				102	58	0	640
26	0	2.5				64	33	0	388
27	0	1.9				36	27	0	252
28	0	0.6				16	6	0	80
29	0	0			Fasting	0	0	0	0
30	0	0	0.13		C ₁ PF ₁	10	11	6	138
May									
1	0	0			C ₂ PF ₂	22	18	18	322
2	0	0			C ₃ PF ₄	32	29	29	596
3	0	0			C ₄ PF ₅	42	29	52	752
4	0	0	0.17	1.00	C ₆ PF ₆	53	41	64	952
5	0	0			C ₅ PF ₇	53	49	59	1029
5-9	0	0	0.16	0.60	C ₅ PF ₈	53	57	84	1196
9-15	0	0	0.12		C ₆ PF ₈	53	57	86	1214
									54.1

¹ Taken fasting

Note disappearance of acidosis as well as sugar from the urine and the decrease of sugar and fat in the blood. The patient originally showed marked acidosis. Will he ever regain a substantial tolerance for carbohydrate?

Table No. 9. A Fat Woman Becomes Sugar Free and 10 Months After Onset Has a Tolerance For 155 Grams Carbohydrate and Blood Sugar Is About Normal

Case No. 2386 Age at Onset -- July, 1921 -- 45.2 years. Height 5-2 net

Date	Sugar		Diet Ordered Toat or Maintenance	Diet Calculated Prot., Fat		Weight kilograms net
	Urine %	Blood %				
1921						
Oct. 7	9.1	0.37 ¹				
9-10	3.6		T. D. 2 ²	115	44	12 744
10-11	1.3		T. D. 3 ²	49	54	9 392
11-12	0.2		T. D. 4 ²	31	25	0 224
12-13	0		T. D. 5 ²	36	27	0 252
13-14	0	0.15	C ₂ PF ₂	22	13	18 302
14-15	0		C ₄ PF ₄	42	29	39 635
15-16	0		C ₅ PF ₅	63	43	55 1009
16-17	0		C ₆ PF ₆	83	53	87 1351
17-18	0		C ₇ PF ₇	95	51	97 1407
18-19	0		C ₁₀ PF ₈	106	53	79 1387
21-22	0	0.14	C ₁₂ PF ₈	124	55	78 1412
1922						
May 8	0	0.12	C ₁₂ PF ₁₂	155	80	94 1756
						68

¹ Taken 3 hours after a meal

² Ate only part of it

Diet C2PF2, and by May 25 he was taking 100 grams. This patient depended upon the equivalents of food shown at the bottom of the card instead of using scales. I believe he would

Table No. 11. Eventual Disappearance of Acidosis and Attainment of Normal Blood Sugar with Low Carbohydrate and Protein and High Fat Diet

Test Diets and Maintenance Diets Were Impracticable in This Case

Date	Sugar Urine %	Diet Test or Maintenance	Weight kilograms net	Date	Days on given diet	Urine Diabetic acid	Sugar gm. 24 hrs.	Ammo- nia	C	P	F	Cal.	Blood sugar per cent	Weight kilograms net	Blood fat	Age at Onset -- May, 1917 -- 10 years Present Age -- June, 1922 -- 15 years
1921																
Nov. 28	8.0	0.81 ¹		Jan.	..	---	60									
29	3.8			2	1	-	83	2.1	51	10	2	262				
30	3.8	T. D. 1 ²		2-3	1	-	30	1.3	38	6	1	186				
				3-4	1	-	39	2.8	22	13	18	302				0.24
				4-5	1	SI-	13	1.36	12	19	24	340				
Dec. 1	1.7	T. D. 2		5-6	1	SI-	25		11	18	30	386				25.9
				6-7	1	SI-	10		11	18	35	440				
2	0.3	T. D. 3		7-8	1	SI-	10	0.95	11	23	51	595				
				8-9	1	0	16		12	29	51	623				0.31
3	0	T. D. 4		9-10	1	0	14		1	13	12	164				
				10-11	1	0	7		3	19	39	339				
4	0	C ₃ PF ₃		11-12	1	0	14		3	19	62	556				
				12-13	2	0	7		3	19	64	664				
8	0	C ₄ PF ₄		13-15	2	0	14		4	27	69	775				
				15-18	3	0	15		4	27	69	775				
6	0	C ₆ PF ₅		18-19	1	0	17	1.3	3	19	64	664				0.27
				19-20	1	0	9		5	20	75	824				
7	0	C ₆ PF ₈		20-21	1	0	18		8	24	68	740				
				21-22	1	0	26		1.8	9	17	73	761			0.33
8	0	C ₇ PF ₇		22-23	1	--	15		1.8	9	17	73	761			0.23
				23-30	7	-	8		0.88	0	0	0				
9	0	C ₈ PF ₈		30-31	1	--	14		10	17	73	765				
				Feb.	5	-	11		10	18	75	787				0.26
10	0	C ₉ PF ₉		31-5	10	-	10	1.1	5	13	55	302				
				5-16	1	SI-	9		8	16	87	879				
11	0	C ₁₀ PF ₉		16-16	4	SI-	6		4	13	53	635				0.23
				16-20	1	SI-	3		3	9	36	372				0.39
E2	0	C 133-P 69-F 83		20-21	1	SI-	4	0.59	4	12	48	485				
				21-22	1	SI-	8		9	16	87	879				0.22
				22-24	2	0	0		8	16	87	879				0.06
1922				Mar.	8	0	0		8	16	87	879				0.06
				24-3	8	0	0		8	16	87	879				0.17
Jan. 16	0	129 82 75		21	0	0	0		12	19	87	907				26.3
Feb. 25	0	107 63 93		Apr.	11	0	0		0.31							
				May	18		0.31									
Mar. 1	0	77 88 100	63.0	May	18		0.31									

have done better at the hospital, but he demonstrated how easy it is to carry out treatment by occasional calls at a doctor's office.

ACIDOSIS.

As we are told to avoid the appearance of evil, it is the A B C of diabetic treatment to avoid even the appearance of acidosis. In any discussion of the routine treatment of diabetes it is necessary to include a consideration of the treatment of acidosis and deaths resulting from diabetic coma. It is generally recognized that when a certain amount of carbohydrate is oxidized in the body acidosis does not exist, and Shaffer has done us all a service by analyzing the literature and presenting a formula which shows just how much carbohydrate must be oxidized to prevent acid poisoning. His formula appears to be the most reliable guide which we have today. It is founded on the principle that one should consider the total metabolic needs of the body whether supplied by food or body tissue and is based on the conception that 2 molecules of fatty acid can be oxidized by 1 molecule of glucose. To the basal metabolism of the patient Shaffer proposed adding 30 per cent. for activity, but for the quiet diabetics it is probably better to add 20 per cent. From this total he subtracts the equivalent of 100 times the grams of nitrogen excreted in the urine and divides the remainder arbitrarily by 50 to get the theoretically lowest quantity of carbohydrate which can prevent acidosis for such an individual. This figure represents the carbohydrate required for the day. Since it must be simultaneously burned with the protein and fat and thus be continuously consumed during each hour of the twenty-four, he considers it safe to double this quantity. Shaffer's formula represents a great advance in treatment, because it makes precise the quantity of carbohydrate which must be oxidized and allows the administration of larger quantities of fat with safety than hitherto thought admissible. In the future, therefore, one can prescribe carbohydrate, protein, and fat to diabetic patients in such proportions as to yield the greatest amount of energy and yet avoid acidosis, provided there is still some tolerance for carbohydrate left; and this is apparently always the case.

For practical purposes the writer has for several years sought to overcome acidosis by the promotion of oxidation of carbohydrate, and the limitation of oxidation of fat, and has strenuously stood out against the necessity of the use of alkalis. Shaffer's formula shows that the alkalis are needless and that emphasis should be placed upon the regulation of the carbohydrate-fat ratio based upon the actual metabolism.

If, despite our efforts, acidosis threatens, the following routine treatment is recommended: (1) Reduce the total metabolism by placing the patient in bed and providing a nurse, to save all needless exertion; (2) Administer abundant liquids—240 c.c.—each hour in order to promote the excretion of acid bodies; (3) Promote evacuation of the bowels not only to favor digestion but in order to enable, if desired, enemata of salt solution or water to be given in case water is not retained by the mouth; (4) Wash out the stomach in the first stages of treatment, because, frequently, coarse food is retained, which leads to vomiting, and loss of valuable hours; and (5) Administer moderate quantities of carbohydrate,—either levulose, which is readily obtained in the form of orange juice, or if this is disliked or for any reason contraindicated, oatmeal gruels and skimmed milk. I have avoided fat largely because it is more apt to upset the digestion of a patient upon the verge of coma, and second because from fat the acid bodies which lead to coma are formed. Recently, evidence has been submitted that body fat will be consumed if extraneous fat is not given, but at present it appears safe in the presence of threatening acidosis to cling to the above-mentioned plan of treatment, and if the body is to burn fat to let it select its own dose. Confidence in this method has grown because there has been less than one per cent. of fatalities from coma in more than 600 cases treated in hospitals since April 1, 1919, and two of these deaths occurred within 36 hours of admission. Confidence also has been engendered in it because of a series of 15 cases who have recovered without alkalis from acidosis so severe that the CO_2 in the alveolar air was as low as 18 mm. tension Hg.

None of the coma deaths in the hospital took place with patients who were placed upon Test Diet 1 and systematically advanced according to the general plan of treatment outlined above. Such a death, however, has been reported to the writer in an elderly patient who had arteriosclerosis and a bad heart; this warrants iteration of the phrase upon which I have so often insisted regarding the conservative treatment of severe, long standing, complicated, obese, or elderly cases, as well as those with acidosis; in these types one should depend upon much more gradual undernutrition and thus escape Test Diet 5, or even 4, and after a day or two upon Test Diet 3 transfer to Maintenance Diets of the third, fourth or fifth day.

TREATMENT WITH LOW CARBOHYDRATE AND LOW PROTEIN AND HIGH FAT DIETS. (NEWBURGH AND MARSH.)

Thus far the routine treatment which the writer uses has been described. It is based upon undernutrition as introduced by F. M.

Allen in 1914, and though undernutrition has often been carried to extremes it is today the fundamental basis upon which all treatment rests. The modifications of it already described are simply what the writer has found to be desirable with his own cases. In the last two years another plan of treatment has been proposed by Dr. Newburgh and Dr. Marsh of Ann Arbor. Their method also rests upon the principle of undernutrition in that the patients at the beginning of treatment are given about half the required number of calories, but to this principle they add that of limiting the protein, at first to an extremely small figure,—namely 10 grams,—and even later holding it nearly at the minimum requirement of 0.66 gram per kilogram body weight. The balance of the diet is made up of carbohydrate 14 grams, and fat 90 grams, thus bringing the total diet up to nearly 1000 calories. They describe their method of treatment as follows: "When a patient enters the clinic, he is placed on a diet containing from 900 to 1000 calories, of which about 90 gm. is fat, 10 gm. is protein, and 14 gm. is carbohydrate. After the patient has been sugar free for one or two weeks, his diet is increased to about 1,400 calories, of which 140 gm. is fat, 28 gm. is protein, and from 15 to 20 gm. is carbohydrate. In the case of small individuals this diet is sufficient for prolonged use, and some of them are discharged with instructions to continue it. For larger persons, after another period of trial, a second increase is made, reaching 1,800 calories, containing 170 gm. of fat, from 30 to 40 gm. of protein, and from 25 to 30 gm. carbohydrate. Further additions up to 2,500 calories may be made to suit individual cases."

"In order to prove that our procedure is an improvement over the usual method, we must show, (1) that glycosuria is avoided in severe diabetes; (2) that this diet does not precipitate acidosis; (3) that nitrogen equilibrium is maintained; and (4) that the patients are able to lead at least a moderately active, comfortable life."

Credit should be given to Dr. Newburgh and Dr. Marsh for their courage in prescribing so much fat for diabetics. Despite the literature on high fat diets there has been of recent years a distinct fear of fat, fostered, it is true, by the writer, which now the Woodyatt and Shaffer formulas to a considerable extent abate. The secret of success in the Newburgh and Marsh plan lies in the limitation of the amount of fat combined with a low protein allowance, and these are the reasons why acidosis does not develop. With these diets they have made the urines of patients sugar free, reduced blood sugar to normal, and, what appears hard to understand, have lowered the fat in the blood. Their cases, however, are not yet of sufficient

duration to show that these diets are satisfactory for diabetic patients for long periods or are the best diets for early cases. That their system has produced some remarkable results Table 11 above shows. With this 15-year-old boy, whose diabetes was of 5 years' duration, the Newburgh and Marsh plan of treatment succeeded after other plans had failed.

Newburgh and Marsh have emphasized the necessity of the diabetic patient receiving sufficient calories. They have done great service in this regard. Confirmation of their tenet that the effect of food, whether derived from external sources or from the sacrifice of body tissue, is much the same has been recently furnished by the Russell Sage Clinic, where Du Bois and Richardson have gone so far as to demonstrate that the metabolism remains unaltered when corresponding quantities of carbohydrate, protein, and fat, are burned, whether derived from food or from body tissue. It is, however, again emphasized that the diets proposed by Newburgh and Marsh are limited diets. Fat is not given in an unrestricted manner, protein is most radically curtailed, and so is carbohydrate. The object of the diet is to keep the patient sugar free and no attempt is made to add to the weight. These features of the diet must be repeated over and over because thoughtless practitioners and greedy patients have caught the words "high fat" and have prescribed or used fat in harmful quantities. It requires a great deal of intelligence to live on a low carbohydrate, low protein, and high fat diet. The dangers of breaking over such a diet by increasing fat are far greater than the dangers of breaking over a diet by increasing carbohydrate. The patient who breaks over only in carbohydrate pays an immediate penalty and is warned by increased urination; the patient who breaks over only in fat is not warned and dies.

The statistics of the Ann Arbor, and the writer's clinics have been compared in many ways. The newer methods yield no better results so far than the old. I believe, however, that the mutual interchange of ideas between the two clinics, and the adoption of some of the features employed in each will distinctly raise the duration of life of diabetics who come for treatment in the future.

HIGH CARBOHYDRATE DIET.

I cannot escape from the impressions: (1) that in those countries where the diet consists largely of carbohydrate, the diabetes is mild; (2) that the diets of those diabetics who live longest, whether they show sugar or not, are those whose carbohydrate has never been long reduced to a very low quantity; (3) that as yet few cases have been published who have lived outside of institutions upon very low carbohy-

drate and high fat diets, and attained an average duration of their diabetes, equivalent to those recorded for my own, 597 fatal cases, since June, 1914, appearing in Table 1. Of all my cases I recall but one, Case No. 632. He has lived for the last six years on approximately carbohydrate 28 grams, protein 79 grams, fat 133 grams, alcohol 15 grams. He developed diabetes at the age of 33 years, in 1913. I wonder if he would be better off today if the protein these six years had been lower; (4) that, given a diabetic in the last stage of inanition, he may gain a considerable lease of life when carbohydrate and protein are given freely; but this, however, is soon shortened by coma if much fat is added too; (5) that if the liver can be made to harbor any carbohydrate it is a protective phenomenon (witness the giving of carbohydrate freely to children prior to tonsillectomies and the resulting avoidance of acidosis thereby); (6) that upon analysis of cases of coma it will be found that usually preceding its onset carbohydrate has been lowered and the fat metabolized has been increased, whether from exogenous or endogenous sources; and (7) finally, that as the work done by Benedict, and the writer, at the Nutrition Laboratory has shown, there is no diabetic so severe as to have completely lost the power of responding to carbohydrate by a failure to raise the respiratory quotient as a result of its administration.

My attention to a high carbohydrate and low fat diet has been especially drawn by a little boy, Case No. 2007, George B., an only child, who eighteen months after onset continues to keep sugar free on a diet of carbohydrate 165 grams, protein 70 grams, fat 44 grams. The diagnosis was made by Dr. John Lovett Morse in the course of a routine examination on December 1, 1920, at 5.8 years of age, a few days after the beginning of symptoms, when the urine showed a specific gravity of 1.035. It was 1.028 on the following day. The percentage of sugar on December 3 was 4.4. Ten days after the onset of symptoms he excreted but 3 grams of sugar, although his diet consisted of Test Diet 2, carbohydrate 192 grams, protein 58 grams, fat none, calories 640, and he was sugar free the next day on Test Diet 3—carbohydrate 64 grams, protein 33 grams, fat none. From that time on his carbohydrate has been gradually increased until he is now taking carbohydrate 165 grams. The protein has been raised from 33 grams to 70 grams, *i.e.*, 3.3 grams per kilogram body weight, but the fat has been constantly kept low, never having risen above 44 grams. This little boy, George B., has been sugar free, except on two occasions, November, 1921, when he had an infection with a temperature of 102 degrees, for three days, and showed a trace of sugar, and again in February, 1922, when he had a

cold. He has gained three to four pounds in 17 months, and an inch and one-quarter in height. The diet has never been broken. The urine is examined daily and often several times daily. No examination of the blood was made until the completion of this paper, when the importance of the case made this seem obligatory. On June 7, 1922, two hours after a meal, the blood sugar was found to be 0.09 per cent.

The example of this case suggested similar treatment for other cases, and in Tables 12, 13, 14 and 15 the course of some of these is summarized. None of these other cases have done quite as well. Case No. 2140, aged 20.8 years, at onset, who originally showed 7.0 per cent. sugar, with acidosis, and later acquired a tolerance of carbohydrate 186 grams, protein 89 grams, fat 75 grams, fell out of the race when he ate nine doughnuts one night; Case No. 2052 thoughtlessly broke his diet by the addition of cream, and thus jeopardized his future; Case No. 2095 suffered from a tonsillitis. The little boy, George B., however, has never broken his diet, and not one of my patients has had such close care. The future of this child, therefore, should disclose the merits of this form of treatment. It is, however, fully realized that faithful supervision of a diabetic case, provided the diet is not distinctly bad, *i.e.*, excessive, is so great a factor in treatment that it largely overcomes many minor dietetic faults. Whether the little boy, Case No. 2007, George B., is so very unusual, time will tell.

Strangely enough, by one of those coincidences so common in medicine, a case similar in many respects—Jack R., Case No. 2661, who has been under the care of another physician from the beginning—I have just had the opportunity to observe for a few days. This little boy is also an only child, his diabetes was also diagnosed promptly after onset of symptoms, namely, in September, 1921, at the age of 5.1 years. The first specimen of urine showed 8.0 per cent. sugar in October, 1921. At present, May 26, 1922, nine months since the onset of his diabetes, his diet is: Carbohydrate, 36 grams; protein, 42 grams; fat, 114 grams—making the calories 1338, or exactly identical with those of George B. His fasting blood sugar was 0.09 per cent. on May 26, and on May 29, 0.07 per cent., and the blood fat 0.71 per cent. His weight at onset was 17.1 kilograms and today is 16.9 kilograms. The urine contains no sugar, but shows a positive test for acetone and for diacetic acid. The average of the 24-hourly analyses of ammonia for five days is 0.53 grams, and of nitrogen, 7.8 grams. Since each child will be guarded by the parents with equally scrupulous care their careers will be watched with aggressive vigilance, since I know of no two cases who are as likely to afford crucial evi-

TABLE No. 12.—The Use of a High Carbohydrate Low Fat Diet in Youthful Diabetics.

Case No. 2007, Geo. B. Age at Onset -- November, 1920 -- 5.8 years. After 17 Months He Tolerates Carb. 165 gms., Prot 70 gms., Fat 44 gms.

Date	Sugar Urine %	Carb.	Prot.	Fat	Cal.	Weight kilograms net
1920						
Dec. 1	1					
2	2					
3	4.4 ³					21
5-8	0.5					
6-7	0.3	102	58	0	540	
7-8	0	64	33	0	388	
13-14	0	80	40	12	588	
14-15	0	90	45	15	679	
15-16	0	100	51	20	784	
19-20	0	110	52	20	828	
1921						
Jan. 8-9	0					
Feb. 23-24	0					
Apr. 7-8	0	140	60	40	1160	
July 26-27	0	152	68	42	1258	
Aug. 25-26	0	155	70	44	1296	
1922						
Apr. 29	0	165	70	44	1336	23
June 7	0 ⁴	163	70	44	1336	

¹ Spec. Grav. 1.035 ² Spec. Grav. 1.028 ³ Vol 1170, Spec. Grav. 1.031

⁴Blood Sugar 0.09 per cent., two hours after noon meal.

TABLE No. 13.—High Carbohydrate, Low Fat Diet.

Case No. 2049 Age at Onset -- December, 1920 -- 9.7 years

Date	Sugar Urine %	Blood %	Carb.	Prot.	Fat	Cal.	Weight kilograms net
1921							
Jan. 21	5.2						25
22	5.2						
25	0.5						
26	trace		64	33	0	388	
27	sl. tr.		64	33	0	388	
28	0		36	27	0	252	
29	0		46	39	6	394	
30	0		58	41	6	450	
31	0		70	42	15	593	
Feb. 3-4	0		78	46	21	685	
11-12	0		95	49	26	810	
June 16	0 ¹	0.08 ²	100	51	25	829 ³	24

¹Reported to have been constantly sugar free

²taken in my office five hours after meal

³Diet reported unchanged. I fear it was later given up, because repeated inquiries have failed to elicit replies

TABLE No. 14.—High Carbohydrate Diet.

Case No. 2052 Age at Onset -- November, 1920 -- 17.5 years

Date	Sugar		Diet in Grams				Weight kilograms net
	Urine %	Blood %	Carb.	Prot.	Fat	Cal.	
1920							
Dec. 7		0.23					
1921							
Jan. 6	0	0.09					
24-25	0	0.10	67	54	35	799	53
31-Feb. 1	0	0.08	121	65	48	1176	
Feb. 12-13	0	0.09	200	71	62	1642	54
May			170	75	60	1520	
June		0.10					
Sept.		0.12	142+	57+	70+	1036+	57
Nov. 5-6	0	0.09	138	69	71	1467	56
1922							
Apr.		0.17					

TABLE No. 15.—High Carbohydrate Diet.

Case No. 2095 Age at Onset -- November, 1920 -- 27.3 years

Date	Sugar		Diet in Grams				Weight kilograms net
	Urine %	Blood %	Carb.	Prot.	Fat	Cal.	
1921							
Feb. 21	8.3						
22	9.0						
23	3.7	0.20	99	57	0	624	60
24	1.6		64	33	0	368	
25	0.2		36	27	0	252	
26	0		16	6	4	124	
28-Mar. 1	0	0.06	61	33	9	457	
Mar. 6-7	0	0.05	131	67	14	918	
16-16	0	0.05	206	74	62	1184	59
1922							
Feb. 7	0	0.11	157	74	85	1689	60
May 19	0	0.11	140	60	68	1412	57

dence as regards the optimal carbohydrate-fat ratio. Which child is on the better diet? I confess to the preference for that diet which most closely approximates the normal. On the other hand, I do not feel justified in advising a reversal of the diet of Jack because of the presence of a normal blood sugar and a normal blood fat. It has been my experience

also that such modifications made at such a late date are disastrous.

It is only within this decade that diets generally have been accurately controlled for months and years and the quantities of carbohydrate, protein and fat recorded, and only within the last eight years that the total quantity of food has been at all closely limited. In

TABLE No. 16.—A Comparison of the Diets of Two Diabetic Children.

Case No.	Age	Onset Date	Present Condition Date, 1922	Urine Sugar	C.	Diet		Weight	
						P.	F.	Cal.	Lbs.
2007	5 yrs. 8 mos.	Nov. 1920	June	0	150	70	44	1276	49½
2661	5 yrs. 1 mo.	Sept. 1921	May	0	32	50	52	706	39½

consequence it is only today that we are in a position to compare the effects of various diets, only today that we can begin to discuss how, for instance, it is best to distribute a given caloric intake between the three food-stuffs. In point are the two "only" children cases described above. So far as I am aware, no data exist to prove which is the better of the diets prescribed for these two, and so one is forced to prescribe empirically.

Lest the idea be gained that one can be careless about the diet of diabetic patients, I report two cases in children in which the disease was not discovered promptly. These cases, Nos. 2560 and 2568, did not begin treatment until the disease had established itself for respectively eight months and a half and seven months. This was most unfortunate. These children demonstrate this clearly when compared with Case No. 2007 and with Case No. 2661, who are younger children, but have received the advantages of earlier treatment. Case No. 2007, diagnosed promptly and with his diabetes now almost twice the duration, is taking nearly twice as many calories as Case No. 2560.

PROGNOSIS IN DIABETIC CHILDREN.*

Tender-hearted parents sometimes ask, and sympathetic friends nearly always ask: "Since diabetes is always fatal in children, why prolong the agony? Why not let the poor child eat and be happy while life lasts?" The answer may be made, and, indeed, in all conscience must be made, forcefully.

1. In the dark hour that no family escapes, in that hour when one of the circle is stricken with some accident or infection that threatens life or reason, hope often falls to nearly nil. Yet often the surgeon saves the dangling life, and sometimes the doctor does, too. Who that has seen a shattered soldier or a child in meningitic opisthotonos has not thought, "What is the use? Rather anesthesia and euthanasia." But this cannot be. Courage has saved such lives, not once but many times. Just so courage has lengthened the lives of many diabetic children, and no man knows but that the cure may be at hand within the year—even the month.

*This section was contributed to my Shattuck Lecture by Horace Gray, to whose sympathetic care of many of my diabetic children their parents testify.

2. The mother must not be forgotten. Only too often the diabetic child is an only child, but though there be others this one life at stake is so intimately a part of the mother that we cannot do her the injury of killing hope, of admitting "Yes, popular belief is true: your child can never grow up." I ask you, what is that mother's life worth, to herself and her family, so long as she wakes each morning to interpret any change in her child's condition as a step toward certain death? Is not hope worth keeping alive—if only to save her nervous system?

3. Finally, it is not true that this child before us can *not* possibly grow up. As I just said, there is real reason today to think a cure is near at hand. But, apart from that, even the methods at present available have made many children today live on the average twice as long as ten years ago, and a goodly number for over five years.

4. Many of these children get a lot of fun out of life. Who but a moron will maintain that cripples are not often both more cheerful and braver than many of our intellectual, social, political leaders! Furthermore, many such restricted children not only get but give pleasure and example. Some, even among diabetic children, live *exceptionally* happy lives for years; the following case is illustrative.

Case No. 894, Rexane, developed diabetes in her babyhood, probably about January, 1914, at one year and five months of age. The diagnosis was not made for a year later. In March, 1915, the urine contained 5.3 per cent. sugar, but when I first saw her, July 30, 1915, there was but 0.2 per cent. Under routing treatment she remained quite constantly sugar free until 1917, when in July the sugar in the urine amounted to 4.0 per cent. She again became sugar free, but has been so only intermittently since. Upon May 24, 1921, the urine contained 3.0 per cent., but the morning specimen of May 26 was free from sugar. The blood sugar was 0.210 per cent. July, 1919, and in September, 1920, was 0.17 per cent. Her diet has been low. *After eight years and four months of diabetes she is now 9 years and 9 months old, weighs 47.4 pounds naked, and is 45.5 inches tall, without shoes. Her diet is approxi-*

mately: Carbohydrate, 50 grams; protein, 50 grams; fat, 50 grams. In 1918 she spoke each day for a week at a Keith's theatre, selling Liberty bonds, and a year ago was kind enough to sing for the New England Pediatric Society, to show that a diabetic child was happy. This bright, attractive and plump little creature now "is looking extremely well and in high spirits," and will act this week as flower girl at her sister's wedding.

CLASSIFICATION OF DIABETES.

The classification of diabetes into mild, moderate and severe has been a common practice, useful in discussions and in comparisons of treatment. The diabetic with less than 10 grams tolerance for carbohydrate was long considered severe, with 10 to 50 grams tolerance moderate, and with over 50 grams mild. Today we know that such a classification is uncertain. The underfed diabetic may appear to have an abnormally high tolerance. The method is furthermore fallacious in that the glucose-forming power of protein and of the glycerin in fat is disregarded. A better classification now exists, thanks to the emphasis put upon the question by Woodyatt, and is dependent upon the *total glucose* (G) derived from all the foodstuffs. To this total glucose carbohydrate contributes gram for gram, protein 58 grams per 100 grams, and fat 10 grams per 100 grams. An estimate of assimilative power also gains greatly in reliability if during its determination the patient be upon a maintenance diet, or at least one which is equivalent to the basal metabolism and furthermore contains at least the minimum protein requirement of 0.66 grams per kilogram body weight. Theoretically such a basis of classification seems ideal; time will be required to determine its utility.

Any of the above classifications of diabetes denotes the state of the disease at the moment, but gives no information concerning the response of the patient to treatment. For this reason I have recently adopted a working classification planned less upon the severity than upon the present condition. For the purpose of treatment it is not of so much interest to be told that a patient is a severe or a mild diabetic as it is to be informed whether he is doing very well (A), fairly well (B), not very well (C), or is in a dangerous condition (D). To arrive at such a decision is not difficult with a knowledge at hand of the urine (sugar, diacetic acid, albumin), the diet (carbohydrate, protein, fat), the weight, pulse and blood pressure. For convenience, upon the slip which gives these data the letters A, B, C, D are printed. Somehow when you yourself deliberately or someone else deliberately scores your patient (D) it makes more of an impression

upon the mind than simply to gather from the accumulated reports that he is not doing well. This working classification has proven very helpful. I think it will save some lives.

PREVENTION OF DIABETES.

It is a pleasant transition from needless diabetic deaths and from treatment to prevention. There is need for the prevention of diabetes in the community because its prevalence is apparently increasing. This is partly explained (1) by the detection of more new cases in the early age periods than formerly, (2) still more by the successful attack of modern science on the infectious diseases, particularly in childhood, with resultant increase of the general expectation of life, so that more individuals reach the susceptible diabetic period, and finally (3) because after diabetes is discovered the patient lives nearly twice as long as a decade ago. This alone adds 2,000,000 of years of diabetes in this country. In 1910 one death in every 95 in this state was due to diabetes, but in 1921 one death in every 62. The likelihood of dying of diabetes today would therefore appear to be 50 per cent. greater than 11 years ago. Although the relative proportion of diabetic deaths to all deaths is increasing, the death rate from diabetes in Massachusetts of late years per 1000 of the population remains stationary.

ROUTINE MEDICAL EXAMINATIONS.

If diabetes is to be prevented, we must attack its precursors. Doctors blame patients and patients blame doctors for failing to report or detect the beginnings of disease. What is needed is the development of a spirit of coöperation between doctor and patient. The doctor must practise medicine of such a high standard that the laity cannot fail to appreciate it and see that the trained medical mind can discover diabetes, and other diseases as well, at an earlier stage than the untrained individual. This attitude between doctor and patient is one which must be cultivated. The physician must take pride in educating the families under his care in these principles of preventive medicine. He should teach heads of households to recognize that it is as important for them to keep weight charts of themselves and their children as it is for the state to keep weight charts of children in the schools. The community must be taught that tuberculosis, cancer, heart disease and diabetes in all families should be diagnosed in their incipency, but in intelligent families to a large extent should be prevented. The patient will appreciate a physical examination if it includes a consideration of his weight, height, teeth, tonsils, lungs, heart, abdominal organs, and in addition an examination of his urine. The physician

should point out that students entering college, that soldiers about to enter the army, are all subjected to routine physical examinations, and that these examinations are repeated at yearly intervals. Surely parents would wish to show as deep an interest in their children as professors in their students or generals in their soldiers. The use of scales should be encouraged. A good Christmas present for a family is a pair of scales and a good birthday present for each of its members a complete physical and urinary examination. These measures aim at the prevention or discovery at an incipient stage of all disease. They represent the present trend in medicine which all young practitioners will educate their patients to adopt. Doctors can truthfully say that about the only untaxed commodity a parent can leave his child today is health. The more we doctors promote the routine physical examinations of our patients the less likely will the community clamor for state medicine. Those of us who do not wish this must heed the need, because otherwise it will not be long before free physical examinations will be generally advocated.

URINARY TESTS.

The diagnosis of diabetes is made from the examination of the urine. How infrequent such examinations are has been shown from an analysis of groups of cases in which prior to the examination at which the diagnosis was made there was no history of an earlier urinary test. In one series a few years ago the percentage in approximately 100 cases was 39 per cent., and in a recent similar series there was no essential change; namely, 35 per cent. Urinary examinations of all individuals should be made yearly. Elaborate examinations with such needless tests as one often sees recorded, namely, for phosphates, urates, titratable acidity, chlorides and indican, should be abandoned for more frequent simple tests. In all acute illnesses urinary examinations should be made for albumin and sugar, and invariably at the last medical visit the doctor should secure a specimen of urine for his own protection. Never allow a new patient to leave the office without obtaining a specimen of urine. Do not trust to the patient's sending a 24-hour specimen. Each has its own value. In a forthcoming paper from this clinic Horace Gray will point out the great advantages which may accrue from examinations of single specimens of urine and will show that often these are of more service than 24-hour specimens. It is especially desirable to secure specimens of urine within two hours after a meal. Such a sample from one of my patients showed 3.0 per cent. sugar, while the specimen only two hours later was sugar free by Benedict's qualitative test. If the urine is kept sugar free not only in the

24-hour specimen but after each meal, there is seldom cause for worry.

It is safer, as I have repeatedly maintained, to call all individuals diabetics who show sugar in the urine until the contrary is proven. Wait a year at least before positively stating that such an individual, even though he voided but a small quantity of sugar, is not a diabetic. If the sugar in the urine is considerable in quantity and varies with the diet, no doubt about the diagnosis exists. If the sugar in the urine is considerable but does not vary in the least with the diet, the question arises as to whether one is dealing with a case of renal glycosuria. Such cases are extremely rare. I remember to have seen but two in my series when the quantity of sugar in the urine was over 2.0 per cent. The main criteria for a case of renal glycosuria are (1) that the blood sugar shall be 0.11 per cent. or less at the same time as glycosuria is present; (2) that the sugar in the urine be essentially independent of the carbohydrate in the diet; and (3) that the case show its non-progressive character after observation for years rather than weeks or months.

BLOOD SUGAR.

Estimations of the blood sugar are useful. They frequently give warning that the patient is reaching his tolerance in diet although the urine remains sugar free. They are a great comfort in cases of pregnancy, because a normal blood sugar in the presence of a few tenths per cent. of sugar in the urine leads to the conclusion that rigid dietetic restrictions are unnecessary, since a renal type of sugar excretion does appear to be a not infrequent fact in pregnancy. Blood sugar estimations are essential in making the diagnosis of renal glycosuria. Blood sugar curves, however, and blood sugar tolerance tests are yet in their infancy. The variations with normal individuals after 100 grams of glucose or after an administration of 1.5 grams glucose per kilogram body weight are most wide. This has been emphasized by Fitz in a paper presented before the American Society for Clinical Investigation in May, 1922. He pointed out that even the absorption of glucose takes place in varying degrees of rapidity from the stomach and consequently often is actually present in the stomach when the blood is taken for examination. A normal blood sugar before breakfast in the morning is usually 0.09 to 0.11 per cent. After 100 grams of glucose it may rise in normal individuals to varying heights, but it is well to be suspicious of any blood sugar above 0.16 per cent. within an hour after a meal, or of a blood sugar which is above 0.12 per cent. at the end of two hours.

OBESITY.

Obesity has preceded diabetes in fully 75 per cent. of a series of 1000 of my patients. Between 31 and 40 years of age but 12 per cent. of the patients who developed the disease were under weight, and after the age of 40 years 6 per cent. or less. In the thin, according to Mr. Mead of the Lincoln National Life Insurance Company, the incidence of diabetes remains constant throughout life. All other considerations concerning the etiology of diabetes should drop out of account when the possibility is recognized of preventing the disease by simply maintaining a normal weight. If patients can be induced to be vaccinated against smallpox and to be inoculated against typhoid fever they can and should be persuaded to be weighed against diabetes. In securing a record of weights one gains information not alone of value in preventing diabetes but of value in the recognition of many other diseases. It is therefore quite as important for individuals to learn when they are below weight before the age of 35 as it is to recognize that they are overweight after the age of 35. Scales are to chronic disease what thermometers are to acute disease. In a series of 100 of my cases analyzed a few years ago a third acknowledged that they had eaten or drank to excess, and in a more recent series in which more attention was paid to this point two-thirds admitted excess in food. Often the excess took the form of candy (the consumption of one pound a day being repeatedly acknowledged), pies, ice cream, daily and abundantly, one pound of steak at a meal—in short, overindulgence in all caloric directions, non-alcoholic as well as alcoholic, was reported.

THE PLACE OF THE HOSPITAL IN DIABETIC TREATMENT.

It may appear paradoxical to remark that the hospital with a low diabetic mortality is not performing its function in diabetic treatment, but to a certain extent this is true. During the last few years hospital mortality has decreased from 28 per cent. to 2 per cent., while mortality in private practice still stays high. The reverse should be the rule. The hospitals should have the severer cases and hence the higher mortality. Hospitals where diabetic patients are treated should seek the severe diabetic. Operative cases, particularly cases with gangrene and infections, even though of minor degree, pregnant diabetics, complicated cases, cases with acidosis, and dietetic backsliders should be sent to hospitals; in short, any case not doing well should be in an institution where improvement of the condition can usually be attained and a program outlined which can be followed at home. For cases of these types the general practi-

tioner has frequently neither the time nor the experience. If mild and moderate cases are treated in hospitals methods should be employed which will allow not only the actual dietetic treatment of the case, but the education of the patient to be completed in the shortest space of time. These are the patients whose treatment should be developed by the practitioner, and hospital beds set free for the severe or apparently hopeless cases who need them more. If such a principle is generally adopted hospital mortality may go up, but the general diabetic mortality will surely go down.

Another function of the hospital is to initiate new cases into the dangers and advantages of the diabetic diet. The time required is not long. Undernutrition has shortened it much and the earlier use of moderate quantities of fat has saved several more days. It is a good plan to discharge cases with somewhat less calories than they need. Diabetics are far more liable to add than to subtract from the diet prescribed, though it is really true that errors appear in both directions. The final hospital diet achieved is always a diet suited to the hospital. One never knows what the caloric needs of the patient will be at home. I am steadily sending my cases home earlier and earlier, depending upon return visits in a week, two weeks, or even less frequent intervals, to determine whether the diet fits the demands put upon it. It is a gratifying fact that in a considerable percentage of cases the patients do better outside the hospital than was expected. Such a quick turnover of cases, however, demands increased instruction of the individual patient. He saves rather more in time than the nurse or doctor. Hence the reason for schematic diets and the utmost simplicity in all methods. Informal talks and conferences in small classes and held weekly yield the best results.

Finally to the hospital one looks for the promotion of research. Without research a hospital is stagnant. By research I mean the sort which any hospital can conduct, even though its staff contain the name of no brilliant investigator, the type which is open to us all. In each hospital a consistent plan of treatment should be adopted and an accurate record kept of the immediate and future results therewith attained. This type of research is sure to raise the standard of treatment no matter by whom employed, not only for the one engaged in it, but for fellow physicians, nurses and patients. It is the type of research which can be made worth while by hard work and offers the young clinician an opportunity for useful service. He will find that the field will rapidly broaden, if he but has the vision.

Although it is often true, and it is a matter for regret, that the general practitioner fre-

quently loses close contact with a diabetic case when it enters a hospital, it probably will not be gainsaid that from the hospital have come the advances which have given general practitioners more years of diabetes to treat.

The grouping of diabetic patients in a hospital promotes simplicity and better treatment. Visiting diabetic patients on eight different floors or in eight different wards of a hospital each morning is a ridiculous waste of time. Imagine, if you can, a shoe factory with stitchers working higgledy-piggledy in eight different rooms. For uniformity in care and systematic improvement in the technique of treatment it is hard to see how satisfactory results can be obtained unless all the diabetic patients are grouped to a greater or less extent and under the supervision of one individual. The individual may change from time to time, but for results there must be a policy of treatment and not haphazard treatment. Even if several different physicians treat the cases of diabetes in a hospital each will probably acknowledge that it is to his and the patient's advantage if all the cases are under the supervision of one nurse and all laboratory examinations performed in the same laboratory. If this is true for the nurse and the laboratory can it be any less true for the doctor?

The financial burden of hospital treatment of diabetes is considerable. Patients should be encouraged to take the cheaper beds in open wards. A patient with gangrene may require one or two months' treatment in a hospital. The economic factor is a serious one and should be plainly faced from the start.

Diabetic boarding houses are needed. I know of but one or two such in the state. Probably the best way in which these can be carried on is to have them situated near a hospital where considerable numbers of diabetic patients are treated. In this way they can receive not only patients who are upon the waiting list for admission to the hospital but patients whose discharge could take place a few days earlier if they were in close connection with the hospital. Furthermore, by being so situated they often can accommodate the friends of patients. Diabetic boarding houses are especially good for diabetic children with their mothers. In such a home these children get along far better and give much less annoyance to other patients than when in the hospital.

DIABETIC CENTERS.

Centers of instruction for diabetic patients should be promoted. These may form around an individual doctor or a group of doctors or a hospital, but the necessity of such centers is the detailed nature of the instructions which diabetic patients must receive and the expense of the laboratory tests. It is easier to teach a group of patients and far less

time-consuming than to teach individual patients. The time required to perform ten tests for sugar in the urine exceeds by little that required for one test. When it comes to blood sugar estimations the difference in expense between performing ten tests and one is almost negligible. Wholesale methods must be introduced into medical practice to reduce expense and render these tests available for all. Private laboratories should be encouraged wherever they exist, and hospitals, whether private or public, should extend the facilities of their laboratories to physicians in need of the same. The cost of maintenance of a well-equipped laboratory is considerable, but if the plant is kept in operation continuously it can easily pay for itself with very moderate charges. It is the laboratory which only occasionally performs a blood sugar test or but one blood sugar test a day and other tests in similar proportion which needs to charge large sums for maintenance. Physicians must learn to coöperate in their laboratory work just as surgeons have learned to coöperate in their surgical work. Very few surgeons have their own anesthetists; very few physicians should have their own laboratories. The latest and newest methods of treatment are being constantly demanded by patients. If the physicians are not able to furnish the results of these methods and tests at suitable fees then the laity will demand that the state furnish them just as it furnishes diphtheria antitoxin and Wassermann tests.

Nurses who are trained in diabetic treatment are of the greatest assistance to physicians. This will never be appreciated unless tried. For patients, too, who can afford it the simplest way to carry out treatment is to have the diet arranged by a nurse. Severe cases are incomparably better treated in this manner than by remaining in a hospital.

In this year of 1922 diabetics and diabeticians have much for which to be thankful. The mysteries of drugs for diabetes no longer enthrall and the mysteries of the diet are steadily vanishing in the light shed upon them by Allen in his discoveries upon undernutrition, by Woodyatt in his emphasis upon the total glucose value of the total diet, by Shaffer in his establishment of a definite relationship between ketogenic and antiketogenic factors which has elucidated acidosis, and by Newburgh and Marsh, who have shown how remarkably a low protein and a high but limited fat diet can help a desperate case. To all of these investigators we clinicians should be profoundly grateful.

The advances just heralded are so full of promise that they would appear to furnish progress enough for the period, or at least all deserved, but when we think in this strain

we forget youth, young doctors and young countries whose restless, untiring enthusiasm spurs to greater achievement. Now there is no longer need to say "Hope long deferred maketh the heart sick," because of the young Lochinvars of Toronto. All praise to them and to Canadian medicine. The practical ingenuity of the New World has here distanced the Old World hypotheses on intermediary metabolism. Insulin, the name they have given to their pancreatic extract, will temporarily lower the sugar in the blood, banish it from the urine, and promote the accumulation of glycogen and the removal of fat from the liver. Time, patience, and plain prosaic work will do the rest. It may take a decade or more before the treatment of diabetes is as simple as that of myxedema, but all will work the more confidently now that Pisgah's heights have been ascended and the promised land is plain in view.

Current Literature Department.

ABSTRACTORS.

GERARDO M. BALBONI
LAURENCE D. CHAPIN
AUSTIN W. CHEEVER
ISADOR CORIAT
ERNEST M. DALAND
RICHARD S. EUSTIS
ROBERT M. GREEN
JOHN B. HAWES, 2D
JOHN S. HODGSON

CHARLES H. LAWRENCE
HERMAN A. OSGOOD
FRANCIS W. PALFREY
EDWARD H. RISLEY
WILLIAM M. SHEDDEN
GEORGE G. SMITH
JOHN B. SWIFT, JR.
WILDER TILESTON
BRYANT D. WETHERELL

FRED S. HOPKINS

AN AMBULATORY TREATMENT FOR CHRONIC ULCERS OF THE LEG.

GURD (*Can. Med. Assn. Jour.*, Vol. XI, No. 11, Nov., 1921) describes the method of treating chronic ulcers of the leg in ambulatory patients at the Montreal General Hospital, which has been very successful; careful carrying out of the details is of great importance; adhesive strapping is applied about every two weeks by the following method: the leg is thoroughly soaked in washing soda solution and thoroughly cleaned with soap suds and a soft brush, the sloughing material trimmed off, then washed with ether. The patient then lies on his back with the leg held vertically against the wall for one-half to two hours, relieving the leg of oedema and drying the skin thoroughly. The leg is kept elevated somewhat and the strapping applied over both the ulcer and uninjured parts of the leg, in strips from 2.5 to 3.5 cm. in width and long enough to overlap when placed around the leg; starting from the base of the toes, the foot is encircled, each layer overlapping the previous one by at least 1.5 cm., avoiding cutting edges about the malleoli. The strapping is carried up to just below the knee. If the ulcer is discharging freely, a gauze dressing should be applied outside the adhesive over the ulcer and may be frequently changed by the patient. The first dressing is changed at from four to ten days, succeeding ones from two to three weeks later, the same careful and complete technique being carried out each time.

[A. W. C.]

NITROUS OXIDE-OXYGEN ANALGESIA AND ANAESTHESIA IN OBSTETRICS.

BOURNE AND DUNCAN (*Can. Med. Assn. Jour.*, Vol. XI, No. 11, Nov., 1921) discuss nitrous oxide-oxygen anaesthesia, describe in detail their technique, and most strongly advise its use in obstetrics for the following reasons:

That nitrous oxide-oxygen is the most acceptable to the patient, though it is the most difficult to administer properly; that it is the least harmful known anaesthetic to both mother and child; that uterine contractions are decidedly stimulated, reducing instrumentation; that by changing to 100 per cent. oxygen the moment the child is born there is prompt oxygenation of the child before severance of the cord; it has been established that the uterus in systole absolutely blanches itself, and as these gases are administered only during the rise and acme of systole no nitrous oxide can be conveyed to the foetus during this time. In a well-conducted case the oxygen is commenced at the declination of the systole and continued through the diastole until the uterus is at rest. They emphasize particularly the necessity of this type of administration because by it alone the foetus escapes all possibility of nitrous oxide influence. The results are much better in the toxemias.

[A. W. C.]

MALIGNANT DISEASE OF THE THROAT.

SYME (*Can. Med. Assn. Jour.*, Vol. XI, No. 12, Dec., 1921) states that malignant disease affects the oropharynx (tongue and fauces included) in the proportion of 5 males to 1 female, the laryngopharynx in the proportion of 5 females to 1 male, and the larynx 5 males to 1 female; the age averages are 45 in females, 57 in males; in laryngeal cases the age incidence is higher. To emphasize the need of careful investigation when hoarseness extends over a week or two, there is ever so slight difficulty in swallowing, pain on swallowing often shooting to the ear, or cough not explained by findings in the chest. He describes carefully direct examination either by the suspension apparatus or tubes, histological, x-ray, and investigation of involvement of glands.

After covering in detail the various radical and palliative operative procedures, he ends with a plea for earlier suspicion and recognition of malignant diseases in this region.

[A. W. C.]

PROGNOSIS AND DIAGNOSIS IN TUBERCULOSIS AS AIDED BY SEROLOGY.

OGDEN (*Can. Med. Assn. Jour.*, Vol. XI, No. 12, Dec., 1921) reports on 100 cases in which the inhibitive reaction was studied. This reaction is a test for the amount of "inhibition" in the blood of tuberculous patients, a body or quality developed in varying amounts at different periods and in different patients; it is a tuberculous antibody only, so that a patient may have a high inhibition reaction and yet be dying of some complication. This test was worked up and a monograph published in 1911 by Caulfield in the *Journal of Medical Research*.

The author finds a marked inhibition reaction rare, corresponding to the clinical observation that but very few patients progress steadily and favorably. In a fair percentage a moderate reaction is present, while most give little or no reaction. He reports several cases in detail, showing the value of the test in prognosis, the cases following fairly well the course predicted by the test. The test should be done at intervals, however, as it does not

always remain the same. The reaction is of but slight value in diagnosis as it is negative so very frequently. In those very doubtful cases who are doing well and who may or may not be tuberculous, it is at times of value, for a positive test in these cases helps to assist in the diagnosis, for the tests are negative almost invariably in normal individuals so far reported.

[A. W. C.]

CANCER OF THE STOMACH.

MASSON (*Can. Med. Assn. Jour.*, Vol. xi, No. 12, Dec., 1921) reviews 1912 cases of carcinoma of the stomach operated on at the Mayo Clinic between 1910 and 1921. The average age was 53.7 years, the youngest was 18 and the oldest 81; 40 per cent. occurred in the sixth decade; 78.5 per cent. were in males, 21.5 per cent. in females.

He emphasizes the lack of characteristic symptoms until after the malignancy is well advanced, but states that an expert roentgenologist can find about 95 per cent. of all gastric tumors and ulcers, and that x-ray is of great aid in determining operability, though of course it can never show up metastases. Clinically it is often impossible to tell whether an ulcer is in the stomach or duodenum, and this is very important to know, as malignant degeneration of the edges of a duodenal ulcer is very rare, while the reverse is true in gastric ulcers. He urges that careful and full examination be made of patients with gastric symptoms of a type suggesting ulcer far earlier than at present commonly done on account of this possibility of malignant degeneration; that surgeons explore such patients earlier while radical cure is still possible, and that the laity be taught so far as possible that cancer operated on sufficiently early can be cured.

[A. W. C.]

THE INFLUENCE UPON TOXICITY AND TRYPANOCIDAL ACTIVITY OF SHAKING ACID AND ALKALINIZED SOLUTIONS OF ARSPHENAMIN AND SOLUTIONS OF NEOARSPHENAMIN IN AIR.

SCHAMBERG, KOLMER AND RAIZISS (*Am. Jour. of Syph.*, Vol. v, No. 1, Jan., 1922) describe in detail their method of testing these solutions and give 15 tables showing the results. The authors' conclusions cannot be improved upon in summing up the article.

1. The undue shaking of alkalized solutions of arspenamin increases the toxicity; the shaking of such solutions is rarely necessary.

2. The shaking of acid solutions of arspenamin for one minute beyond the time necessary to effect solution is accompanied by a slight increase in toxicity. Ten minutes' extra shaking increases the toxicity still further.

3. The shaking of solutions of neoarsphenamin for even such short periods as one minute is accompanied by a great increase in toxicity. Shaking for ten minutes enormously increases the toxicity.

4. It would appear from the studies of Roth and from those which we have conducted that neoarsphenamin should be dissolved with as little agitation and as little exposure to the air as possible.

5. Different lots and brands of arspenamin and neoarsphenamin vary considerably in their liability to oxidation on shaking.

6. The trypanocidal power of acid solutions of arspenamin is considerably increased after one minute of shaking, but is decreased after ten minutes' shaking.

7. The trypanocidal power of alkalized solutions of arspenamin is considerably increased by one minute's shaking, and the increase is still evident after ten minutes' shaking.

8. The explanation of the increase in trypanocidal power is probably to be found in the formation of "arsenoxide," which is known to exert a greater trypanocidal and spirocheticidal effect than arspenamin.

9. The shaking of solutions of neoarsphenamin is not accompanied by increase in trypanocidal effect.

[A. W. C.]

SARCOMATOUS ABDOMINAL TESTICLE IN A HERMAPHRODITE.

HALPENNY AND KINNEARD (*Can. Med. Assn. Jour.*, Vol. xi, No. 9, Sept., 1921) describe in detail a case of a large sarcoma of an abdominal testicle in a hermaphrodite, filling the pelvis and inoperable, checked by a pathological report, treated by Coley's serum, with death in three months. Unfortunately no autopsy could be obtained.

[A. W. C.]

CHRONIC PAIN IN THE RIGHT ILIAC FOSSA.

GRAHAM (*Can. Med. Assn. Jour.*, Vol. xi, No. 9, Sept., 1921) writes about a group of patients with chronic pain, with or without tenderness, in the right iliac fossa. He names the disorders of this region as having to do with abnormalities in the caecum, appendix, ileo-caecal valve, and the terminal ileum; and states that the diagnosis of chronic appendicitis should not be made in these cases unless there is a history of previous one or more acute attacks.

The symptoms described are a lack of feeling of well-being, breakfast is rarely enjoyed, often there is abdominal discomfort in the early morning, while examination shows little except tenderness, which is not severe, on palpation of the right lower quadrant. The x-ray shows ileostasis up to 100 hours or over, while there is more or less incompetence of the ileo-caecal valve, with a marked ebb and flow between the caecum and the ileum.

The author recommends in these cases, which are so frequently diagnosed chronic appendicitis with adhesions and operated on over and over again for breaking up of the adhesions, an extensive operation be done consisting of a resection of the terminal ileum, caecum, and ascending colon to a point proximal to the hepatic flexure. The operation confirms the preoperative diagnosis by showing the caecum dilated and thin-walled, possessing none of the tone or elasticity seen in the normal bowel; it lies flaccid and tends to retain abnormal contours from handling.

He states that in these cases the clinical result is surprisingly good and completely justifies the formidable procedure necessary for its attainment.

[A. W. C.]

THE TREATMENT OF IRREPARABLE NERVE INJURIES.

HARRIS (*Can. Med. Assn. Jour.*, Vol. xi, No. 11, Nov., 1921) considers as irreparable nerve injuries those which, though sutured end to end, have failed to recover, and injuries where end-to-end sutures cannot be performed.

Some of the first group result from imperfect suture; in some cases the motor and sensory fibrils become shunted along sheaths belonging to the opposite group and so are lost; some result from pulling apart of the ends, the proximal end forming a neuroma attached to the distal by a strand of scar tissue. Factors causing separation are usually too great tension on the suture or imperfect fixation of the limb after operation, or too rapid flexion of joints after fixation. Irreparable musculo-spiral injuries can be greatly improved by tendon trans-

ference. Irreparable median nerve lesions may be improved by nerve anastomosis to relieve anaesthesia, and tendon transference to overcome paralysis. Irreparable sciatic lesions are better treated by means of stabilizing operations such as tendon fixation, than by tendon transferences.

Several excellent figures from photographs are given.

[A. W. C.]

A CLINICAL STUDY OF THE PATHOLOGY OF OSTEOMYELITIS.

GIBSON (*Can. Med. Assn. Jour.*, Vol. XI, No. 11, Nov., 1921) emphasizes the point that inflammation of the bone is just like that of soft tissue except as modified by the nature of the tissue; bone cannot make a rapid offensive on account of its structure. There are two definite types: the juvenile, starting practically always on the diaphyseal side of the epiphyseal cartilage, some fulminating, others slow; and the adult type, where the epiphyses have united with the shafts, starting at any part of the bone, never fulminating.

He tabulates 48 cases as to age, bone affected, apparent cause, etc., and describes two cases showing that the organism may remain in the bone for years, starting afresh at intervals, at times of local or general diminution of resistance. [A. W. C.]

A THOROUGH HISTORY AN IMPORTANT FACTOR IN SYPHILIS.

BROEMAN (*Am. Jour. of Syph.*, Vol. v, No. 4, Oct., 1921) notes the difficulty of extracting histories of syphilis from patients years ago, especially when the public looked upon syphilis somewhat differently from the attitude of today; then the discovery of the treponema by Schaudinn and Hoffmann, followed soon by Wassermann's publication on the complement fixation test in 1906, then the prompt and great over-reliance on laboratory tests, with considerable tendency to disregard histories and physical findings; then came a realization of the fact that the Wassermann test is frequently negative in the face of unquestionable syphilis, and occasionally positive in the complete absence of syphilis, and the value of histories and examination again became evident.

Patients should be allowed to tell their own stories in their own way, with a little guidance, however tedious, the examiner thus often giving valuable leads, when the patient is off his guard, which can be followed up in building a good history: this is valuable both in helping to work out the patient's own case and in getting the donor under care. In these days of propaganda in regard to syphilis, patients are less reticent and yet more able to conceal, if that be their desire, through better information.

In regard to congenital syphilis also, the history of the whole family must be most tactfully, but most carefully, gone into; also in acquired cases so as to find any possible accidental infection of contacts, as shown in Schamberg's "epidemic" from playing "kissing games."

[A. W. C.]

AGE OF THE RECIPIENT AS A FACTOR IN THE TOXICITY OF ARSPHENAMIN.

ROTH (*Am. Jour. of Syph.*, Vol. v, No. 4, Oct., 1921) describes a series of experiments carried out on white rats at the Hygienic Laboratory to determine whether the weight limits, and consequently the age limits, need be rather definite in the toxicity tests; it is known that within narrow limits the age of rats can be calculated from their weights;

the experiments are given in detail with tables and show that rats of the regulation weight are less resistant to arsphenamin than those below, and more so than those above, pointing to age as an important factor. Accepting Donaldson's statement that a rat three years old corresponds to a man of 90, these experiments would cover a period in man corresponding to that from the end of infancy to the beginning of adult life; this applied clinically should lead to relatively larger doses in infants and children than in later life. Clinically this seems to be checked up by the relatively fewer reactions reported in infants and children than in older persons.

[A. W. C.]

SYPHILIS IN THE THIRD GENERATION.

TUMPEER (*Am. Jour. of Syph.*, Vol. v, No. 4, Oct., 1921) gives the following seven postulates as required to establish proof of passage of syphilis to the third generation:

1. Acquired syphilis in a grandparent.
2. Certainty of the parentage of the affected parent.
3. Congenital syphilis in that parent.
4. Absence of acquired syphilis in both parents.
5. Certainty of the parentage of the child.
6. Congenital syphilis in the child.
7. Absence of acquired syphilis in the child.

From the nature of things, the first, third and sixth are the only ones which can be absolutely proved. The second and fifth can be assumed if there is a marked resemblance to the supposed father. The fourth and seventh can never be proved, but painstaking history and examination go far to rule out acquired syphilis superimposed on a congenital (binary syphilis) or an accidental acquired syphilis in childhood. He discusses the literature, especially the writings of Fournier and Hutchinson, and concludes by showing photographs of and describing a mother and three children where his seven postulates seem to be as satisfactorily fulfilled as possible.

[A. W. C.]

A STUDY OF THE RELATION BETWEEN SYPHILIS AND DIABETES MELLITUS.

ROSENBLUM (*Am. Jour. of Syph.*, Vol. v, No. 4, Oct., 1921) found in 139 cases of diabetes mellitus positive Wassermann tests, suggestive history, signs or symptoms of syphilis in about 12 per cent., and considers about half of them as due to the syphilis and the rest as cases where the two conditions co-exist independently of each other. He gives a long bibliography of the subject.

[A. W. C.]

EPITROCHLEAR ADENOPATHY IN SYPHILIS.

RULISON (*Am. Jour. of Syph.*, Vol. v, No. 4, Oct., 1921) goes into the anatomy and physiology of the lymphatic system in regard to infections in general and syphilis in particular, and gives a good bibliography on the subject. In 252 specific cases of all stages, even including Wassermann-negative, dark-field-positive cases, he found no epitrochlear enlargement in 21 per cent., bilateral in 59 per cent., unilateral in 20 per cent., combined in 79 per cent. In 43 non-specific cases he found no enlargement in 77 per cent., combined positive in 23 per cent. In a group of 11 cases with the disease over 20 years he found 90 per cent. with positive findings. He found relatively fewer positive cases in central nervous system syphilis. Treatment did not seem to cause complete resolution of epitrochlear adenopathy. Other causes of the condition

are given: the other granulomata, carcinoma, lymphatism, acute eruptive fevers, leukaemia, Hodgkin's disease, rhachitis, infections of the hand and forearm, chronic generalized pruritus from any cause.

[A. W. C.]

SILVER ARSPHENAMIN.

GUY AND JACOB (*Am. Jour. of Syph.*, Vol. v, No. 4, Oct., 1921), after using silver arspenamin in a group of cases, arrive at the conclusions that the drug is worthy of a trial, but that changes in the present mode of therapy, as discontinuing mercury, are not indicated at present; that the drug is best given in concentrated solution mixed with blood before injection; that it might work well where arspenamin is not tolerated; that, weight for weight, it is more toxic and less effective than arspenamin.

[A. W. C.]

AMOEBIIC LIVER ABSCESS.

ROGERS (*Brit. Med. Jour.*, Feb. 11, 1922) discusses the condition of amoebic liver abscess and summarizes his opinion as follows:

"The affection formerly known as tropical liver abscess, both in the acute multiple small form and the chronic large single form, is produced by infection through the portal vein with the *Entamoeba histolytica*, only occasionally assisted by bacteria, and is always secondary to antecedent amoebic ulceration of the large bowel, which is clinically active and acute in the multiple variety, but usually completely latent clinically in the more chronic single form, while such abscesses never occur in relation to bacillary dysentery. These conclusions are a great advance on the view generally accepted two decades ago."

[J. B. H.]

IMMUNOLOGICAL REACTIONS OF BENICE-JONES PROTEINS. 1. DIFFERENCES BETWEEN BENICE-JONES PROTEINS AND HUMAN SERUM PROTEINS.

BAYNE-JONES AND WILSON (*Johns Hopkins Hosp. Bull.*, Feb., 1922) discuss the complex subject of the difference between the Benice-Jones proteins and human serum proteins, summarizing their work as follows:

1. The crystalline Benice-Jones protein acts as a single antigen.

2. The non-crystalline preparations of Benice-Jones proteins, isolated from the urine by salting-out or other precipitation methods, contain traces of serum proteins.

3. The Benice-Jones proteins are immunologically different from the proteins of normal human serums.

4. These differences between proteins from the same animal are further evidence in support of the conception that the specificity of proteins is not dependent upon their biological origin, but due to their chemical constitution.

[J. B. H.]

YAWS: AN ANALYSIS OF 1046 CASES IN THE DOMINICAN REPUBLIC.

MOSS AND BIGELOW (*Johns Hopkins Hosp. Bull.*, Feb., 1922) in a most interesting article illustrated with very remarkable photographs, present the latest knowledge on the subject of this tropical disease.

The article does not admit of adequate review but should be read by all interested in tropical medicine. The photographs alone make this paper of extraordinary interest.

[J. B. H.]

FEBRICULA AND INFLUENZA.

SIMEY (*Brit. Med. Jour.*, Jan. 28, 1922) discusses what he calls influenzoid group of diseases as they occur in a large boarding-school, in this instance Rugby. His conclusions are as follows:

1. The influenzoid group of diseases may be subdivided for clinical convenience into two groups:

(a) Localized infections, with slight toxæmia—namely, coryza, catarrh.

(b) General infections, with much toxæmia and possibly septicaemia—namely, febricula, influenza.

2. The severity of symptoms in the second group depends partly on the susceptibility of the patient and partly upon the proportions of the various micro-organisms present, their strains, and the contaminating organisms present. It may be that there are some ultra-microscopic micro-organisms of whose existence we are, as yet, unaware, but I cannot help thinking that the bacillus of Pfeiffer is rightly named *B. influenzae*.

3. Partial and temporary immunity is conferred by an attack of febricula against influenza and by influenza against febricula.

4. Vaccines, therefore, to be most efficacious, should be specially prepared from local material, and in an epidemic these vaccines should be systematically reinforced to keep pace progressively with the advance of the disease.

[J. B. H.]

TUBERCULOSIS OF THE LYMPHATIC SYSTEM.

PHILIP (*Brit. Med. Jour.*, Jan. 28, 1922) summarizes his remarks on tuberculosis of the lymphatic system as follows:

1. The part played by the lymphatic system in the early spread of tuberculosis requires to be emphasized.

2. Patients should be examined with that in mind, and the more important groups of glands should be systematically reviewed. In cases of general delicacy, all the readily accessible lymphatic glands should be carefully investigated.

3. In young children, the lymphatic system should be investigated with especial care, from time to time.

4. Lymphatic tuberculosis, conspicuous in children, becomes less marked in later life.

5. In cases of gross enlargement of one or more glands, exacting search should be made into the state of adjacent glands and other groups of glands.

6. Operative treatment should be limited to emergencies—for example, the immediate removal of an ugly deformity in certain cases or the evacuation of an obviously softened gland.

7. Save in exceptional cases, such operative treatment should not involve extensive incision.

8. Operative treatment should not be regarded as radical.

9. Tuberculous involvement of the lymphatic system can be effectively combated by continuous vaccine therapy.

[J. B. H.]

SOME FUNCTIONS OF THE SUPRARENAL GLANDS.

HEWER (*Brit. Med. Jour.*, Jan. 28, 1922) presents her conclusions concerning the functions of the suprarenal glands as follows:

1. The suprarenal cortex plays a part in fat metabolism and in calcium metabolism.

2. The suprarenal cortex stimulates the thymus to involution.

3. The suprarenal cortex controls the gonads in both male and female with respect to both reproductive and interstitial cells.

4. The suprarenal gland acts as a whole in con-

trolling general health, in controlling haemoglobin breakdown, in regulating the production of mast cells, and in stimulating the thyroid.

5. The suprarenal medulla is connected with the formation of melanoblast cells.

6. Inoculation with various suprarenal extracts appears to lower the resistance of experimental animals, as is indicated by the condition of the lymph and haemolymph glands.

[J. B. H.]

SOME OBSERVATIONS ON THE INVESTIGATION OF THE TOXAEMIAS OF PREGNANCY.

MCLROY (*Brit. Med. Jour.*, March 4, 1922) discusses the various toxæmias of pregnancy and the general principles of treatment, concluding as follows:

"We must bear in mind that the main number of severe cases are preventable if treatment can be given in their early stages. Every pregnant woman should be kept under medical observation, and every case of albuminuria should be investigated. Every premature birth should be notified, no matter at what period of pregnancy, and facilities should be given for examination of the ovum. The public health authorities should take up the question of toxæmia of pregnancy just as they have taken up the question of syphilis. Ante-natal beds should be provided in all maternity hospitals. Financial facilities should be given to research workers, especially in the domain of physiology, for the investigation of the normal function of human pregnancy."

[J. B. H.]

THE POSITION OF THE THYROID GLAND IN THE ENDOCRINE SYSTEM.

BROWN (*Brit. Med. Jour.*, Jan. 21, 1922) discusses in an interesting way the various activities of the thyroid gland, summarizing his remarks as follows:

We are thus led to the conclusion that the position of the thyroid gland in the endocrine system is that of a powerful activator of metabolism. In this respect it co-operates with the adrenals and pituitary, and antagonizes the pancreas and parathyroids. On the nervous side it co-operates with the sympathetic nervous system, both being stimulated to increased activity by it and lowering the threshold to it. In this way it plays an important part both in external and internal defence. Externally it leads to greater manifestation of energy in the direction of fight or flight; internally it quickens the reactions to bacterial invasion. An important way in which it accomplishes this is by mobilizing the blood sugar. This increased supply of sugar may either be used for muscular energy in external defence or for heat in the febrile reaction of internal defence. As a provision against waste of this sugar the kidney threshold is raised to prevent its escape into the urine, so that despite hyperglycaemia there may be no glycosuria. Yet this blood sugar may exceed even this raised threshold, so that some escapes. This is particularly likely to occur during emotional excitement, when the gland is apt to enlarge. It interacts also with the gonads, and the undoubted fact that it plays a more active part in female metabolism may be due to its origin from the uterus of a Palaeostracæan ancestor. This interaction may account for the disturbances which are so apt to occur in the gland after an artificial or natural climacteric. That in the former instance this is likely to take the form of intermittent hyperthyroidism may be due to the gland being still in full activity; in the latter instance hypothyroidism is more common, presumably

because the gland is already undergoing retrogression. The combination of a distressing emotion of matrimonial origin with a toxæmia of alimentary origin is the most fertile cause of hyperthyroidism, and the biological consideration here presented may help to explain why this is the case.

[J. B. H.]

THE CLINICAL IMPORT OF HOARSENESS IN RELATION TO GENERAL PRACTICE.

WATSON-WILLIAMS (*The Practitioner*, March, 1922) in a plain and practical article, illustrated with various diagrams, discusses the different kinds of hoarseness, emphasizing the fact that it may be an early symptom of malignant growth of the larynx.

[J. B. H.]

DEEP X-RAY THERAPY IN MALIGNANT DISEASE.

WEBB (*Brit. Med. Jour.*, Jan. 21, 1922) believes as follows in regard to deep x-ray therapy in the treatment of malignant disease:

1. That this form of treatment is a fundamental and epoch-marking improvement on pre-existing methods of x-ray therapy, and is the technique to be adopted in all cases (other than purely superficial skin lesions) where this form of therapy is indicated.

2. That, as in all other treatments, the earlier a suitable case is treated, the better are the results.

3. That it is the treatment of choice in all cases of menorrhagia or metrorrhagia in patients over 38, provided that suppurative disease of the tubes or ovaries be excluded. Eden and Povis (*Lancet*, Feb. 12, 1921) are in agreement with the use of x-rays in these conditions, though they differ from the German school in excluding cases of malignant disease. It must, however, be remembered that they were not employing the Erlangen technique.

4. All the foreign authorities agree as to the immense value in every malignant case of either pre- or post-operative raying, or both, according to circumstances, and the majority—excluding Professors Seitz and Wintz and their immediate disciples—recommend operation according to the conditions that I have laid down above.

5. Great use is made of deep x-ray therapy in tuberculous disease of the glands, bones, joints, bladder and peritoneum as an auxiliary to other treatments. If in tuberculous glands there be a caseous focus, such glands will break down under the treatment.

[J. B. H.]

THE GROSS PATHOLOGY OF BRACHIAL PLEXUS INJURIES.

ADSON (*Surg., Gyn. and Obst.*, March, 1922) writes that injuries of the brachial plexus, except those injuries in which the pull is downward and outward, are situated in the vicinity of the intervertebral canal proximal to the brachial trunk. The injuries may be slight, lacerating only the fascia around the cervical roots, or they may be severe and result in laceration of the cervical roots between the cervical ganglion and the cervical trunk, with or without avulsions of the ganglion. Inasmuch as injuries of the brachial plexus are produced in the root or the ganglion, they seem primarily to be lesions of the nerve rather than secondary to lesions of the shoulder joint. Patients with milder injuries may be expected partially or completely to recover without surgical treatment, but those with more severe injuries rarely recover, even with surgical treatment.

[E. H. R.]

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THE SHATTUCK LECTURE.

Before presenting the speaker the president gave a brief outline of the gift of the late Dr. George C. Shattuck. Under the provisions of this gift it has been possible to secure eminent physicians who have delivered, on the evening of the first meeting day of the anniversary exercises, a lecture on some important medical subject. Dr. Elliott P. Joslin was then presented and spoke on "The Treatment of Diabetes Mellitus."

This recital of practically all the known facts relating to diabetes mellitus, together with the author's experience and personal views of the indicated treatment of this disease, has placed before the profession in available form the methods employed in dealing with the disorder *per se* and the complications encountered. Every practitioner who may be called upon to deal with diabetes should refer to the material presented in this lecture, for it not only gives the scientific foundation of treatment but in addition presents illustrations of those effects of the disease which patients should understand in order to lead to effective coöperation. It was shown in a most forceful way that faithful adherence to the physician's orders is the only safe path to tread. In order to secure this coöperation the exhibitions of the amount

of sugar excreted in a day and the comparative bulk of carbohydrate-containing foods were object lessons which would appeal to every intelligent person. The dangers incident to unscientific variation of the diet and mechanical injuries were made so clear that there is no excuse for carelessness on the part of the physician who is responsible for the patient's welfare. The assertion that the development of diabetic coma is proof of carelessness or ignorance carries with it consolation and apprehension, for it places on the physician the duty of immediate study of the conditions of the diabetic patient in order that the danger, which is not always frankly apparent, may be averted. If not impending, the medical adviser may be consoled in the feeling of security conferred by the knowledge that he can, by careful attention, place the whole responsibility on the patient or those in charge of details. In like manner the responsibility for many of the complications may be transferred if the physician will perform the duty involved in clear explanation of those things which the patient is entitled to know.

This lecture, like many others provided for by the Shattuck fund, has placed the society under lasting obligation to the donor, and also to those who have been selected to meet the conditions imposed.

This lecture was a notable feature of an interesting and profitable program.

THE GORGAS MEMORIAL INSTITUTE.

IN our issue of January 19, 1922, was a description of the Gorgas Memorial Institute of Tropical and Preventive Medicine, to be established in Panama. The subject was brought before the annual meeting of the Massachusetts Medical Society on June 14, when Dr. F. B. Lund and Dr. R. P. Strong described the project anew and solicited the interest of the society and of the American public, through its fellows, in such a praiseworthy memorial to one of the great men in American medicine. On motion by Dr. Albert Evans, the society voted unanimously to appoint a committee of five, the members being selected by the president, to coöperate with the officers of the Institute in helping to raise the Gorgas Memorial Endowment Fund.

As has been stated, the Republic of Panama has donated a tract of land and a building, to cost \$500,000. An endowment fund of \$6,000,000 is required to carry on the Institute. The plan of the Institute is to prosecute investigations in tropical and infectious diseases by means of research laboratories in bacteriology, entomology, helminthology, protozoology and chemistry, acting in conjunction with the neighboring excellent hospitals of

Ancon and Santo Tomas, to elucidate problems that can be studied only at first hand in the tropics. Graduate students of any recognized medical college are to be received in the Institute and a limited number of research workers, the hope being entertained that members of scientific faculties will avail themselves of its opportunities. What a splendid memorial to a sanitary chief, erected by a grateful republic on territory that Gorgas made habitable!

Major-General William Crawford Gorgas died at Mobile, Alabama, July 4, 1920, at the age of 65. He had retired from the army in 1918 and was, at the time of his death, director of the yellow fever research department of the Rockefeller Foundation. Through his labors the civilized world had been freed from the curse of yellow fever. Research advances had been made in this disease even before he had passed to the great beyond, for Hideyo Noguchi, of the Rockefeller Foundation, had isolated the cause of yellow fever, the *leptospira ieteroides*, and Gorgas was present at the first serum treatment founded on this discovery, in the case of an American marine on board the U. S. S. Chicago, off Honduras, in September, 1919. More recently prophylactic inoculation has been practised upon individuals who are about to enter those scattered areas remote from civilization where epidemics of the disease still occur, by the use of killed cultures of the *leptospira*.

The Gorgas Institute was incorporated under the laws of Delaware in October, 1921. Rear Admiral W. C. Braisted, formerly surgeon-general of the navy and also president of the American Medical Association, is president. The scientific directorate, headed by Dr. R. P. Strong, includes such men as W. G. MacCallum of Baltimore, E. E. Tyzzer of Harvard, W. M. Wheeler, dean of the Bussey Institution, Admiral F. R. Stitt and Lieutenant-Colonel J. F. Siler. There is a strong board of trustees, a finance committee, to invest and care for the funds, and an advisory council made up of leading public men of North, Central and South America.

This international organization, founded in memory of a great sanitarian, for entirely unselfish purposes, will appeal to the American people, who not only possess idealism in a large measure but have a proved ability to produce results. Let the medical profession spread the story of the Institute and its requirements among their friends.



SOME FEATURES OF MEDICAL EDUCATION.

IN very early times students of medicine learned the art through a period of appren-

ticeship. With the creation of medical schools most of the teaching was for a long period by means of lectures, and later clinical exercises came into general use in supplementing theory by the recital of fact. The accepted methods of today involve a form of hospital apprenticeship supplementary to the four years' medical school work under the title of house officer or interne. This interne service has become an essential feature of medical education and is practically universal with ambitious and well-qualified students. Hospitals have become, in a large sense, teaching institutions, because it has been found that the teaching of doctors and nurses is an essential part of hospital service. Except in the cases of a few hospitals maintained as private enterprises, the public has a right to demand that in addition to giving the best possible service to the patients, physicians and nurses should be trained so that the benefits of such institutions should be extended beyond their walls and reach all who later come under the care of those educated therein.

A special problem relating to interne service is now calling for solution, for, coincident with the development of scientific medicine, the necessity of extending the advantages of better service to the greatest number of people imposes on schools and hospitals the responsibility of preparing practitioners for the best possible treatment of the sick. Hospitals provide for those who can and will enter them. Practitioners should render as high-grade service in the home as conditions will permit, so that one may ask at this time: Can or should the training of internes be changed in any way which might enable the future patients of the present-day internes to derive greater benefits? This question has brought forward differences of opinion. It is quite probable that teachers in medical schools and the management of the large hospitals will feel that applicants for interne positions should elect a certain department, for example, surgery, and continue in that service throughout the interne year. Others who contend that we need a greater number of men trained in the general application of surgical, medical and obstetrical methods may feel that house officers should be given a rotating service. This matter has engaged the attention of state examining boards, and since these men are taken very largely from the ranks of general practitioners one can readily understand the contention now being made by state examiners that applicants for state registration should have had a rotating interne service.

While this question is not likely to call for general discussion among Massachusetts state officials for some time, because the probability of getting any radical change in our state law

is small, it is a matter of concern for our medical schools and hospitals. For example, a student informed the dean of one of our schools that he could not take an internship in one of our largest hospitals because he wanted to settle in a state which requires that applicants for registration should have served a rotating internship. This student was misinformed about the particular state in question, but the fact remains that he had become aware of the possibility of this requirement in some states. At the present time twelve states in the Union demand that applicants for registration in medicine shall have served an internship of one year. These states are Delaware, Indiana, Iowa, Michigan, New Hampshire, New Jersey, North Dakota, Oregon, Pennsylvania, Rhode Island, Washington and Wisconsin, and Texas will enter this list in 1925. Four of these—Delaware, New Jersey, Pennsylvania and Rhode Island—demand a rotating interne service. One state only gives a three months' credit for a continuing year in one special service. Officials of Indiana, Michigan, North Carolina, North Dakota and Texas believe that the rotating service is desirable. Michigan had adopted this requirement but subsequently held it in abeyance for further study.

This subject does not, of course, interest the great mass of present-day practitioners, but it is evident that the matter is agitating the minds of educators and state board members and will come up for discussion. The influence of the Council on Medical Education will be important when its attitude shall have been announced, and state boards will be inclined to reflect the opinions of our leaders so far as laws permit. One very good solution may be found in the adoption of plans for the more general education of students during the school and hospital year and advising prospective specialists to take extended courses after the general hospital year. At some future time students may be examined with the purpose in view of ascertaining the fitness of a given person for certain kinds of work. During the war no one could be an aviator until recognized tests had been taken and fitness demonstrated. Why should not the prospective surgeon have poise and mechanical ability? If the aviator was not equal to his task he would be very sure to be his own first victim. The poorly constituted surgeon would escape personal danger only to pass it on to his patients.

The plan may be adopted at some future time of classifying students in medical schools so that there will be fewer misfits among practitioners. If the schools do not do this, state boards may eventually be called upon to require special fitness of those who are ambitious to be known as specialists. During the war

it was found that some so-called specialists did not measure up to recognized standards in service. The government may at some time demand as good care for the civilian as was provided for the soldiers, and the guidance of the medical student into departments of work according to his natural aptitude may be of assistance in providing the most efficient service.

LEGISLATIVE MATTER.

PROMPT attention should be given to the annual registration required by the Harrison narcotic law as recent activities of the Internal Revenue Bureau indicate an energetic enforcement of its provisions regarding delinquencies.

This activity is shown in the recent report of the federal grand jury which returned indictments against two physicians for failing to register as required.

In the Massachusetts district last year there were 1350 delinquents, the majority of them being among the medical profession, and for many it was their second or third offence.

The delinquents, in some instances, declined to take advantage of the opportunity to make an offer in compromise which would settle the cases, and when this was reported to Washington instructions were issued to place the cases in the hands of the United States district attorney.

This course was followed and the result of the proceedings is shown by the two indictments, the first in this state since the Harrison narcotic law went into effect.

Registration made at the office of Collector Malcolm E. Nichols on or before July 1 will preclude the possibility of similar action by government agencies in the future.

HEART DISEASE IN BROOKLINE.

THE Brookline Board of Health reports that more residents of that town die of heart disease than from any other cause. Following this statement is a dissertation on the causes of heart disease suitable for lay reading, which is an unusually clear exposition of the dangers and problems involved. The rest of the *Bulletin* (June, 1922) is especially interesting and instructive.

NEWS ITEMS.

EASTERN HAMPDEN MEDICAL ASSOCIATION.—The last regular meeting of the Eastern Hampden Medical Association before the summer vacation was held at the Springfield Acad-

emy of Medicine, Thursday, June 8. Considering the theme, "Peptic Ulcer," papers were presented on "The Internist's Viewpoint," by Dr. F. F. Dexter, and "The Surgeon's Viewpoint," by Dr. J. M. Birnie. Brief case reports—"Gastric Ulcer," by Dr. F. C. Brigham, and "Perforated Gastric Ulcer," by Dr. H. F. Budington—were given, after which was a general discussion, followed by the usual luncheon. This association, now in its 43rd year, originated in 1880 by the gathering of a small group of physicians from month to month at the homes of the different members, but its usefulness has appealed to so many physicians of the valley that it was long since found necessary to meet in some convenient center to accommodate its increased membership. The custom of meeting on the "Thursday on, or before the full moon," inaugurated at the start, when the country roads were long and mostly dark, is still continued.

DR. E. Y. MYERS, *Secretary*.

MEDICAL WOMEN'S INTERNATIONAL ASSOCIATION.—The second meeting of the Medical Women's International Association will be held at Geneva, Switzerland, from the 4th to the 7th of September, 1922. All members are urged to be present. Each society of medical women in the world is invited to send one eligible delegate and an additional delegate for every hundred members. Interesting reports will be read by medical women from different countries, and the constitution of the organization will probably be revised in accordance with the provisions under which it was adopted. Clinics in the different European cities may be visited en route. The attractions of travel in Europe are great this year. Practically all countries are accessible and the Passion Play will be on at Oberammergau during the entire summer.

BOSTON PHYSICIAN ACCEPTS HIGH POST.—Dr. Nathaniel W. Faxon, assistant director of the Massachusetts General Hospital of Boston, has accepted the position of director of the Strong Memorial Teaching Hospital, Rochester, N. Y., which will be built in connection with the new School of Medicine and Dentistry of the University of Rochester. He will arrive in Rochester next fall.

As superintendent of the Strong Memorial Hospital he will have charge of an institution of 220 beds. It will be erected from the \$1,000,000 given by Mrs. Gertrude Strong Achilles and Mrs. Helen Strong Carter as a memorial to their father and mother, Henry A. Strong and Helen Phoebe Strong. This pledge was made following the gifts of \$4,000,000 by Mr. George Eastman and \$5,000,000 by the

General Education Board for the establishment of the School of Medicine and Dentistry. The Rochester Dental Dispensary, built and endowed by Mr. Eastman in 1916 at a cost of \$1,800,000, will come under the control of the university and be used as a clinic for the School of Dentistry.—*Boston Herald*.

DR. JOHN ROBERTSON, Medical Officer of Health for Birmingham, has left for America, in order to investigate the methods of milk production and distribution in the United States.—*Medical Press and Circular*.

THE WEEK'S DEATH RATE IN BOSTON.—During the week ending June 10, 1922, the number of deaths reported was 164, against 195 last year, with a rate of 11.16, against 13.42 last year. There were 25 deaths under one year of age, against 32 last year.

The number of cases of principal reportable diseases were: Diphtheria, 37; scarlet fever, 32; measles, 188; whooping cough, 10; tuberculosis, 54. Included in the above were the following cases of non-residents: Diphtheria, 1; scarlet fever, 8; measles, 1; whooping cough, 1; tuberculosis, 2.

Total deaths from these diseases were: Diphtheria, 1; scarlet fever, 1; measles, 1; tuberculosis, 9.

DR. EDWARD G. WEST, for 20 years medical director of the Massachusetts Mutual Accident Association and a medical examiner for various life insurance companies, died at his home in Roxbury, June 10, 1922, at the age of 67.

He was born in Philadelphia, Pa., January 3, 1855, was educated at Phillips Exeter Academy, Boston Latin School and at Harvard College, where he graduated with the class of 1877. Three years later he took his M.D. at Harvard, joined the Massachusetts Medical Society and began practice in Roxbury. Besides his insurance work he testified in court as an expert for many years. He was a member of the Norfolk District Medical Improvement Society and of the American Medical Association.

DR. PHILIP A. E. SHEPPARD has forwarded a letter to the secretary of the Massachusetts Medical Society, in which protest is made against the editorial notice in THE JOURNAL of the hearings before the Board of Registration in Medicine. Because of this editorial Dr. Sheppard has tendered his withdrawal from the society. On October 26, 1921, the committee on ethics and discipline of the Massachusetts Medical Society asked Dr. Sheppard to resign.

The Massachusetts Medical Society.

THE ONE HUNDRED AND FORTY-FIRST ANNUAL MEETING OF THE MASSACHUSETTS MEDICAL SOCIETY.

The exercises of Tuesday, June 13, 1922, began with visits to the Boston Hospitals from 8.30 to 9.45. The Sections began their sessions in the Buildings of the Harvard Medical School at 10 o'clock. These Sections were well attended, as follows: Surgery, 150; Department of Chemistry, about 200; Pediatrics, 90; Medicine, about 150; Hospital Administration, about 50; Department of Hygiene, about 150; Physiology, about 100; Tuberculosis, about 200. These figures show a great deal of interest on the part of the society members, corresponding with the relative attendances in pre-war times.

The Council Meeting, although the business was pushed through without delay, lasted two hours and a half. There were 115 councillors present. The President spoke with evidence of deep emotion of the death of several members of the Council, and paid a high tribute to Dr. Edward H. Nichols, whose death was announced in the morning papers. He stated that the year had been most successful, the Society having a membership of over 4000, and that he had found the several districts interested in local and state affairs. Allusion was made to the relatively large membership in the eastern sections of the state which made for undue concentration of power, which could only be avoided by closer amalgamation with the more remote districts. A valuable feature of society activity as shown in the joint meetings conducted last year was referred to, and the hope expressed that there would be united purpose and action in the future.

The reports of standing committees were read and were approved. Dr. S. B. Woodward announced his retirement from the Committee on Membership and Finance in a communication which is herewith reproduced:

"Members of the Council—Gentlemen:

"Since 1888 I have many times been honored with an appointment to one of your standing committees, for I served nine years on the Committee to Procure Scientific Papers, five on the Committee of Ethics and Discipline, three on the Committee on State and National Legislation, and have just completed my second year as a member of the Committee on Membership and Finance. You have also six times sent me to represent you at the meetings of other State societies, twice to New York, twice to Connecticut, once to Rhode Island, and once to New Hampshire. I served you one year as Vice-President, and three years as President.

"I am approaching the time when the grasshopper is said to be a burden, and although I dislike to acknowledge it, have passed by some kilometers the stone that our judicious predecessors decreed might be regarded as the age of retirement. I feel, perhaps, rather late in life, that there should be a wider distribution of offices. I feel that I have been sufficiently, indeed, far too much, honored, and early in the year informed Dr. Bartol that I was not a candidate for re-election to the Committee for which I have just reported.

"He was kind enough to say that he was sorry to have me go, but thought my position well taken. He said nothing about barnacles or the difficulty often experienced in prying an officeholder from his perch, but I cannot thus for the first time in over 40 years refuse to undertake anything that the Massachusetts Medical Society asks me to do without expressing to it, through you, my continued loyalty to it, my gratitude for all that it has year after year done for me, and without assuring you that as long as I can totter hither, hither I shall totter, for owing to a blessed provision of the by-laws, my own district cannot turn me out. I being, as Ex-President, Councillor in perpetuity, or at any rate, subject to removal only by expulsion from the Society."

The vacancy was filled by the election of Dr. David N. Blakely.

The Committee on Public Health, through Dr. Bigelow, the chairman, failed to secure the approval of the Committee on Membership and Finance, for an appropriation of twenty-five hundred dollars for field work. The contention of the Committee on Finance being that a sufficiently detailed report had not been submitted to enable this Committee to determine the propriety of this expenditure. Dr. Bigelow tried to present a motion amending the motion in support of the Committee on Finance which would secure some modification of the total rejection of the plans which the Committee on Public Health has under consideration, but was ruled out of order. Subsequent discussion in private disclosed a feeling that there may be an unintentional discrimination against the Committee on Public Health, for in asking for an appropriation a common custom has prevailed in past years of appropriating money for the use of a committee for study and investigation without the presentation of definite figures. It is reasonable to hope that the Committee on Public Health will not interpret the action of the Council as antagonistic, or without due appreciation of the work done in the past. The Committee on Finance is in a logical position because the report of the Public Health Committee did not technically come before it in season for consideration, for although a statement had appeared in *THE JOURNAL*, the

Committee on Finance did not regard that as a communication directly to it.

The Committee on Medical Education and Medical Diplomas gave a résumé of legislative activities and the meetings in Chicago. The Universities of Alabama and Fordham were added to the approved list of medical schools. A tribute was paid to the activity of some of the medical societies which seemed to be effective in changing the attitude of some members of the Legislature towards the problems of state requirement for higher medical standards.

The Committee on State and National Legislation gave a detailed report of legislative activities which, when published, will place clearly before the Society the amount of work done. Progress has evidently been made in changing public sentiment toward antivivisection, antivaccination, and the cults, and the outlook for better laws is encouraging.

The Insurance and Workman's Compensation Committee tendered reports and were discharged.

Dr. B. P. Croft of Greenfield presented a statement with motions and a resolution as follows:

"Resolved, That the members of the Franklin District Medical Society, recognizing the great importance of closer contact of the District Societies with the parent body of the Massachusetts Medical Society, through the medium of the Council, believe that such contact would be facilitated if the distance to the meeting place and the financial cost of reaching same were more equally distributed, and therefore, we recommend that our Council members offer and support the following motions, provided that their subject-matter has not already been acted on or that they are not unconstitutional:

"1. That one or more of the Council meetings be held in Springfield or Worcester.

"2. That the expense of carfare of all Council members attending the Council meetings be paid from the treasury of the Massachusetts Medical Society.

"3. That the treasurer of the general Society prepare an estimate of the approximate cost of carrying out the purpose of the resolve.

"Resolved, That previous to final action by the Council, a copy of this resolution be transmitted by the secretary of the Massachusetts Medical Society to the secretaries of all District Societies, with the request that its subject matter be acted upon at a meeting of the respective societies, and the result of such action be communicated to the Council through the Secretary."

These are important measures and should receive careful consideration.

Dr. C. E. Mongan of Somerville introduced a motion in favor of a Section of Obstetrics and Gynecology, which was adopted. The President was authorized to select the first officers of this Section.

In addition to the motion for the creation of a new section, Dr. Mongan asked the Public Health Committee for a definition of the term Public Health and the functions of a public health nurse.

The technical details of business transacted will appear in the Secretary's report.

The result of the Ballot for Officers for the ensuing year was as follows:

President—Dr. John W. Bartol.

Vice-President—Dr. Charles E. Mongan.

Secretary—Dr. Walter L. Burrage.

Treasurer—Dr. Arthur K. Stone.

Librarian Emeritus—Dr. Edwin H. Brigham.

Orator—Dr. Roger I. Lee.

Several matters of interest, such as the movement to contribute to the Gorgas memorial, will be given attention in future issues.

THE ANNUAL DINNER.

ABOUT five hundred fellows participated in the annual dinner on Wednesday evening at the Copley-Plaza. The post-prandial entertainment began about 8 o'clock. The President introduced the speakers with witty allusions to the personality or position of each one, a text being supplied for the respondent so that the opening remarks could be built on the inspiration furnished.

Governor Cox was enthusiastically received as the representative of the "Hub of the Solar System." He said in substance that he was familiar with the representative members of the profession all over the state, and paid tribute to the preëminent quality of service contributed by the members of the profession in civic as well as professional affairs. In referring to the law governing medical registration he acknowledged the humiliating position of this state in failing to require higher standards, but found consolation in the small degree of betterment attained the past year in the amendments to the narcotic drug laws, the appropriation of \$15,000 for the investigation relating to maternal and infant hygiene, and the rejection of the Sheppard-Towner act. He asserted that he found the majority of our people self-reliant, progressive, and supporters of churches, schools, institutions and the government, always holding to the noblest traditions, and urged his audience to see to it that there is no spirit of decadence in the nation.

In introducing the next speaker allusion was made to the safety conferred by our laws. Thomas C. O'Brien, the district attorney for Suffolk county, was presented. He spoke of the close contact of medicine and law in the affairs of the state. His message had for its

central thought the menace of the drug evil, with which he had become familiar before assuming the duties of his present office, through membership on the Parole Board. He stated that we use seven times more narcotic drugs than any other nation. The need for these drugs does not exceed three tons, whereas 365 tons are consumed annually. The use of these drugs constitutes a national danger, for, if not checked, this nation would become quite universally degenerate within 25 years. He asked for medical coöperation, for many addicts are found who fell by reason of lack of care on the part of physicians and nurses. He believed that there are one million addicts in this country today and the average individual expense is five dollars per day. Many criminals are recruited from the ranks of drug addicts. He declared that while he had sympathy for the unfortunate addict, he had none for the peddler or careless doctor and would send the criminal peddler and doctor to prison for the maximum term.

In introducing the Hon. B. Loring Young, Speaker of the House of Representatives, the President explained the fundamental importance of the work done by our legislators, to society, and paid tribute to the assistance given to our committee on legislation by the Speaker of the House. Mr. Young gave a clear exposition of the problems relating to medical legislation and reviewed the efforts that have been made to secure better laws, paying especial attention to the bill providing for higher pre-medical standards, the necessity of safeguarding the student engaged in clinical study, and the proposed changes which will be applied to the management of the tuberculosis institutions. He explained all the features of the various maternity benefit bills and spoke scathingly of the danger inherent in federal laws which would lead to bureaucratic management of state affairs by the national government. Furthermore, that unless the present tendency to interference with state affairs is checked, the foundations of democratic government will be shaken. He argued convincingly that state government must be maintained so far as compatible with national safety. He spoke of the great burden to the state incident to the care of those who cannot care for themselves, showing that about sixteen million dollars are expended annually for these dependents. Quoting Lord Beaconsfield, he said that "Public health is the first concern of the state," and physicians can be of great assistance in eliminating degeneracy.

In introducing Dane Professor of Law in Harvard University, Samuel Williston, the President quoted the Latin adage, "*De minimis non curat lex.*" rearranging the words and the translation in a witty way. The pro-

fessor acknowledged his ready acquiescence in the purpose of the President to present him properly sacrificed, and went on to explain the early principles of law, showing the absurdity of that type of law that applied a penalty for an act without taking into account intent or accident. Many amusing illustrations were detailed and the comparison made between the law of the time of the Puritans and the present day, and the change from law according to the letter for just interpretation of the meaning of documents and moral responsibility of behavior.

The President then told of his disappointment in not having the Rev. W. L. Sperry present, who had been detained by illness. He brought the exercises to a close by a brief address. Feeling the need of some remarks which might supply the void resulting from the absence of a clergyman, he said that he would attempt to lead the thoughts of the audience into religious channels, as did his predecessor of a year ago, who, finding himself without a clergyman, valiantly came forward with his own grace before meat, so that he would suggest a text to be found in the fourth chapter of Paul's Epistle to the Hebrews, fourteenth verse: "Let us hold fast our profession."

Paul does not categorically define the word profession but the inference from the context and the modern definition leads us to believe that what he meant was a profession of faith. We as physicians may contend that ours is a profession of practice quite as much as of faith. Is there, however, any difference in fact? Must we not practise what we preach, and do we not preach that the profession must be according to our faith? However we may define and interpret the exhortation of Paul and later dictionary teaching, can it be maintained that the rank and file of our profession are constantly and zealously holding fast to our profession?

There are several concrete questions which we may ask ourselves.

First: Is there any possible foundation for the assertion frequently made by our enemies that there exists a medical trust, composed of members of a so-called profession whose sole aim, however, is self-aggrandizement and trade monopoly?

Second: Do our medical schools function too largely for the sublimation of science and for the turning out of a limited number of graduates, individually dedicated to the pursuit of a microcosmic specialty, and too little for the development of practitioners who shall be counterparts in personality of the ones St. Paul had in mind when he wrote of Luke, the beloved physician?

Third: Is there an unfortunate tendency on the part of those of us who dwell in the comforts supplied by the luxuries of modern equipment to cultivate a feeling of conscious superiority toward others without these advantages, who are doing high-grade pioneer work under adverse conditions at the periphery?

Fourth: Is there a continuing failure on our part to take account of the undoubted prevalence of trifling disorders of mind and body susceptible of cure by simple measures of relief which, if quietly carried out, would rebound to the dignity of our calling, which now unquestionably suffers by invidious comparisons with the activities of a flourishing band of charlatans?

Fifth: Is an unrestricted spread of "group practice" and "pay clinics" likely to result in unpleasant aspersions to the effect that the emoluments on the professional side have a prominence somewhat out of proportion to the benefits accruing to the clientele?

Sixth: Do we keep constantly enough in our minds Theobald Smith's dictum that "It is easier to arouse the nervousness of the public than to allay it"; that whenever practice outruns the laboratory and, more or less impatient, applies the latter's results to the prevention and cure of the disease, it frequently deals with half truths whose application may be harmful; and should not this sense of being surrounded with half truths stimulate us all not to rest content with them, but rather to use our efforts unremittingly until they have been made whole?

Seventh: Are the rural districts being left more and more without adequate medical attendance, partly because of a failure of the medical schools to teach and the student body to divine that there is more solid satisfaction to be gained in unselfish service to the sick and to the community than there is to the assiduous devotion to the flesh-pots of Egypt and the sophistical discursion of laboratory findings? In more than one hamlet in the commonwealth, in more than twenty, you might hear reëchoed the lamentation of the prophet Jeremiah: "Is there no balm in Gilead? Is there no physician there? Why, then, is not the health of the daughter of my people recovered?"

Now, my brethren, it is not I who am asking these questions. In one form or another they are in everybody's mind, and if any man amongst you doubts it he had better leave his closet and put his ear to the ground.

"Lest you forget"! Hebrews, fourth chapter, fourteenth verse: "Let us hold fast our profession."

Miscellany.

THE BOSTON DISPENSARY HEALTH CLINIC.

THE following circular has been distributed by the Boston Dispensary:

Of the first 400 individuals who came to this clinic for a general physical examination, 320 were presumably well. In their own opinion, and to all appearances, there was nothing the matter with them: they came—not for treatment of ills real or imaginary—but because common sense told them that the body, however perfectly it may seem to function, is entitled at least to the attention given an automobile, or a bicycle, or any other machine. They came to be looked over—as an ordinary precaution.

What happened?

Exclusive of eye, ear, nose and throat—not counting minor troubles affecting these organs—316 of these individuals were found to have physical defects requiring treatment.

Almost half of them confessed to bad health habits.

Factors well recognized as leading to organic disease were shown in 30 per cent. of them.

Why?

Despite the increasing span of life, and the more and more evident desire of the average man to live longer, as social attractions are enhanced, indifference to the preservation of health continues to be the habit of the average as well as the exceptional intelligence. It is a very simple truth that attention follows interest, but it is a rather curious truth that interest, in the case of health, follows affliction. There is the paradox.

The Boston Dispensary Health Clinic provides expert medical examination and advice for wage earners who are troubled about their health, or who want to prevent trouble.

What To Do Before You Get Sick.

Illness means that the machinery of the body is somewhere out of order. Most people do not go to the doctor until this happens. No sense to that. Every grownup person ought to have a medical examination at least once a year, whether sick or well, to learn the condition of the body.

Some people think it's the doctor's *business* to "find something wrong." It isn't. *His real job is to prevent disease, not cure it.* But if he doesn't see the machine until it's out of order, how can he?

At the Boston Dispensary You Get:

1. A thorough, general physical examination.

2. Examination by an eye specialist.
3. Examination by a specialist in the ear, nose and throat.
4. Consultation with other specialists, when necessary.
5. Laboratory tests of urine and blood.

The findings of the specialists and of the laboratory are brought to the physician in charge of the clinic, and he explains these findings to the patient and gives his advice.

The Cost: Five dollars for the complete examination. The service, however, is not in proportion to this charge, which is purposely fixed within reach of the means of those for whom the Clinic is intended. X-ray or other special examinations can be provided for moderate additional fees. Two visits to the Clinic are usually necessary.

Persons are received either for general examination as a measure of prevention, or for advice upon their physical condition or symptoms. The "patient" may come upon his own initiative, or at the request of his family physician. The report will be rendered to the family physician if desired.

No treatment is given in the Clinic.

Hours and Arrangements.

The Health Clinic is open on Monday, Wednesday and Friday evenings at the Boston Dispensary, 25 Bennet Street. The first examination is made by appointment.

All records, reports and examinations are held in strict confidence.

It is necessary that each person attending the Clinic fill out in advance a form giving information for the doctor's use. These "history blanks" may be obtained and appointments made at the Dispensary between 9 and 5 any week day, or on one of the evenings above mentioned, or by writing the Dispensary and enclosing return postage. Appointments may also be made by telephone.

Address: Boston Dispensary Health Clinic, 25 Bennet Street, Boston. Telephone Beach 4280.

Correspondence.

A LETTER FROM MAJOR GENERAL
LEONARD WOOD, M.D.

Manila, May 9, 1922.

Mr. Editor:

Your letter of March 21st received on April 26th. I am inclosing copies of two letters which I think will prove interesting to the readers of the BOSTON MEDICAL AND SURGICAL JOURNAL and hope that both the letter and its answer may be given wide publicity, as it will, perhaps, tend to check the unthinking and dangerous attacks which are made upon vaccination from time to time.

Wherever vaccination has been carried out care-

fully in the Philippine Islands, smallpox has practically disappeared. Wherever it has been neglected or inefficiently done, we have had frightful loss of life. The people, who are familiar with the situation, are keenly appreciative of the benefits of vaccination.

The general health situation is complex and difficult. The Philippines are greatly in need of doctors, nurses, and well-trained sanitary inspectors. Efforts are being made to encourage the study of medicine and surgery and to greatly increase the number of nurses and sanitary inspectors. With approximately 11 million people, we have less than 11 hundred trained nurses, about 12 hundred physicians and surgeons, and altogether too few well trained sanitary inspectors. We need at least three times the number of nurses we now have and a very great increase in the number of well-educated medical men. Arrangements are being made for a brief intensive course of training for sanitary inspectors.

A medical survey of the islands is being made under the direction of the Rockefeller Foundation, and steps are being taken to give widespread instruction to the people in food values and to correct the tendency to use too much polished rice, to which is traceable directly fifty per cent. of the heavy annual infant death rate from infantile beriberi. The present infantile death rate is very heavy; about one-third of all children born die in the first year.

We are also reorganizing the great leper colony at Cullion of over 5,000 lepers, so that better and more extensive treatment of the lepers may be possible, and the results made available for the medical profession everywhere.

There is a growing interest among the people, in sanitary matters, and no efforts are being spared to build up an appreciation of the value of preventive medicine and sanitation.

There is an excellent field for the medical missionary and the small well equipped and maintained hospital in the Philippines. The hospitals which have been established by the various churches and missionary organizations are all much appreciated, and are doing good work and have been of great value in supplementing the vigorous efforts of the government. They meet, however, only in part the demands of the situation. Arrangements for the better care and treatment of the insane are also under consideration. The institutions at present in use are largely lacking in the facilities of proper treatment. Much was done while Wm. Cameron Forbes was Governor-General to improve the water supply through the provision of many artesian wells, but an adequate supply of pure water is still one of the great problems.

The Filipinos are naturally a healthy people and their houses so built that they have ample ventilation, but there is, nevertheless, a good deal of tuberculosis. We have also a difficult problem to deal with in controlling malaria.

I have but indicated some of the medical and sanitary problems, but I am sure I have said enough to indicate that there is plenty to do for the dietitian, the sanitarian and the medical profession generally.

Very sincerely yours,

LEONARD WOOD.

THE AMERICAN HUMANE ASSOCIATION.

Albany, N. Y., March 22, 1922.

Major-General Leonard Wood,
Governor-General, Philippine Islands,
Manila, P. I.

Dear General Wood:

Sometime since I wrote to you in regard to the matter of feeding live animals to the snakes in the

Manila Zoo, and recently someone sent me a newspaper clipping, stating that you had forbidden the practice as far as it affected dogs. You promised an additional note of information but it was not received in our office. Doubtless you are very busy.

A correspondent in Tampa, Florida, has just sent me a clipping which discusses the matter of smallpox vaccination in the Philippines. It states:

"In 1918 the Philippine Health Service shot 3,286,376 slugs of pus into that number of Filipinos and reaped a harvest of 47,369 cases of smallpox with 10,447 deaths."

"In 1919 they improved the service and delivered 7,670,252 pus puncheries into their brown brethren and reaped a harvest of 65,180 cases of smallpox with 44,408 deaths."

I have no means of determining the truth of such a statement. If you can put me in the way of getting definite and reliable facts in regard to the conditions referred to, I shall be very glad to have the information.

Hoping that you are well and realizing that you will do everything to make good for our Filipino brethren, I am,

Faithfully your friend,

(Sgd.) W. O. STILLMAN.
President.

P. S.—Does the above mean that the vaccination was a failure? I am a physician. S.

OFFICE OF THE GOVERNOR-GENERAL
OF THE PHILIPPINE ISLANDS.

Manila, April 29th, 1922.

Dear Dr. Stillman:

Your letter of March 22nd, quoting statement from a correspondent in Florida, which would seem to throw doubt upon the efficacy of vaccination, has just been received. The real facts are diametrically opposite; instead of there being any doubt as to the value of vaccination against smallpox it has been doubly confirmed.

According to the reports of the Philippine Health Service, 1918, there have been even a larger number of deaths reported than quoted by your correspondent. When the records are analyzed they show that something like 90 per cent. of the deaths occurred in children, most of whom were born since 1913. The records show that vaccination has been steadily continued since 1913, but on investigation it was found that, owing to the inefficient inspection, vaccination consisted mostly in destroying the vaccine and submitting reports to the main office that it had been applied. In brief, a huge unvaccinated population had accumulated in the Philippines; it only required a spark to set it into conflagration, and in a short time a smallpox epidemic began among these unvaccinated children which assumed huge proportions, and eventually gained such virulence that it affected persons who, under ordinary conditions, would have been safe. The figures of the City of Manila bear out this statement in a striking manner. Among 989 deaths that were recorded all but 100 occurred in children under 10 years of age. Again, of 1826 cases received at the Manila Infectious Disease Hospital, 813 had never been vaccinated, and of these 680 died; 336 had been vaccinated with negative results; of these 249 died. Of the total 1826 cases received at the hospital only 176 had evidence of vaccination, many of which were undoubtedly performed many years prior to the attack of the disease. Among this number there were 60 deaths. During 1919 more effective vaccina-

tion was begun, and there was such a decline in the smallpox epidemic that by 1920 there were only 5 cases in Manila, and none in 1921.

From the accompanying table it will be seen that after effective vaccination had been established in the city of Manila there were no deaths for seven years. It is also interesting to observe that before the days of systematic vaccination in the Philippine Islands that there were approximately 40,000 deaths per year from smallpox. As effectual vaccination was carried out the disease disappeared province by province.

It is apparent, therefore, that the foregoing information makes concrete proof of the value and desirability of vaccination when it is effectually applied.

I note your request with regard to the feeding of snakes in the Manila zoo, and I hope at a later date to be able to furnish you the information requested. The use of dogs has been stopped.

Yours very sincerely,

(Sgd.) LEONARD WOOD.

Dr. William O. Stillman,
President, American Humane Association,
Albany, N. Y.

DEATHS CAUSED BY SMALLPOX IN THE CITY OF MANILA (Transients and Residents Included.)											
Year	GROUP OF AGES										
	30da	30da	1yr	2yr	3yr	4yr	5yr	10yr	15yr	20yr	Un- known
1904	3	3	10	1	3	10	9	3	1	1	1
1905	3	3	10	1	3	10	9	3	1	1	1
1906	3	3	10	1	3	10	9	3	1	1	1
1907	3	3	10	1	3	10	9	3	1	1	1
1908	3	3	10	1	3	10	9	3	1	1	1
1909	3	3	10	1	3	10	9	3	1	1	1
1910	3	3	10	1	3	10	9	3	1	1	1
1911	3	3	10	1	3	10	9	3	1	1	1
1912	3	3	10	1	3	10	9	3	1	1	1
1913	3	3	10	1	3	10	9	3	1	1	1
1914	3	3	10	1	3	10	9	3	1	1	1
1915	3	3	10	1	3	10	9	3	1	1	1
1916	3	3	10	1	3	10	9	3	1	1	1
1917	3	3	10	1	3	10	9	3	1	1	1
1918	3	3	10	1	3	10	9	3	1	1	1
1919	3	3	10	1	3	10	9	3	1	1	1
1920	3	3	10	1	3	10	9	3	1	1	1
1921	3	3	10	1	3	10	9	3	1	1	1

RECENT DEATH.

DR. EDWARD HALL NICHOLS, Professor of Clinical Surgery, Harvard Medical School, and Visiting Surgeon Boston City Hospital, died of cerebral hemorrhage at his home in Boston, June 12, 1922, at the age of 58.

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Late Summer Type. Patients whose hay fever develops in mid-August and continues until frost should be tested with pollens of local importance—primacy being given to the long distance wind pollinated plants, e.g., ragweed. However, where contact is unavoidable, as on a farm, the short distance wind pollinated plants, e.g., corn—and the insect pollinated plants, e.g., sunflower, which are also atmospheric—cannot safely be ignored.

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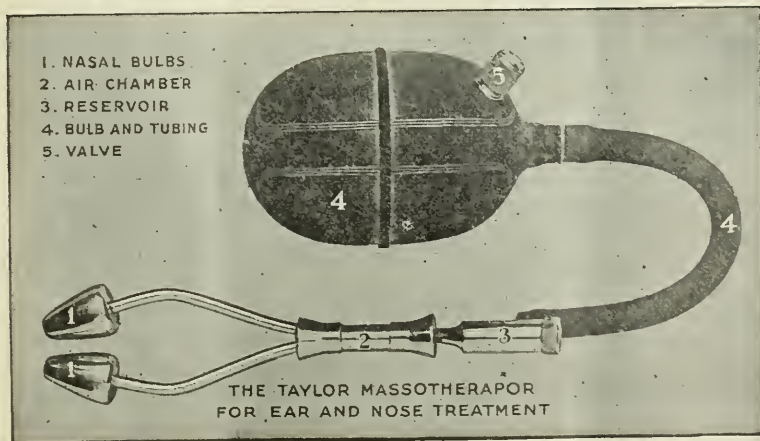
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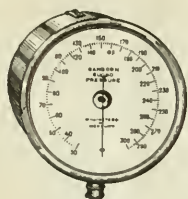
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Original Articles.

MENTAL HYGIENE IN ITS RELATION TO PRESENT-DAY NURSING.*

BY L. VERNON BRIGGS, M.D., BOSTON.

Director of Massachusetts Society of Mental Hygiene; Member of the American Congress of Internal Medicine; Member New England Society of Psychiatry; Member of Société Médico-Psychologique of Paris; Member American Psychiatric Association; Member Société Clinique de Médecine mentale, of Paris, etc., etc.

You have asked me to address your Massachusetts State Nurses' Association on the subject of "Mental Hygiene in Its Relation to Present-Day Nursing Problems." I understand that your organization includes among its members superintendents of nurses and instructors in training schools throughout the State, and I feel much honored to have this opportunity to give you a brief outline of what I believe should be added to the training of nurses and to the requirements for registration, to meet present-day demands for good general nurses as well as to develop high-grade specialists in the care of mental and nervous diseases.

What confronts the sufferer from mental diseases today is: first, the difficulty of finding a physician who is educated in the care and treatment of mental sickness, and, second, the dif-

ficulty in securing the services of a nurse who has had experience along these lines. Generally these difficulties are so great and the patient's needs are so urgent that the only avenue of escape is for the family to send him to a private sanatorium for mental diseases or to a State Hospital. And even in these special hospitals, in many of which we have skilled medical attendance, it is at present often impossible to provide adequate nursing.

It is not possible to separate mental hygiene from hygiene in general. Our mental and physical functions are so closely interwoven and so mutually interdependent that they cannot be regarded separately. The problem of nursing the mentally sick is not that of caring for the frankly insane (as they are still erroneously called) nor for the feeble-minded; not the nursing of raving maniacs or imbeciles, but of the care of large groups of individuals whose physical symptoms find their origin in poor mental adaptation, in personality defects in the patient or in factors in the environment in which the patient lives; or whose mental peculiarities are due to subtle toxic conditions which can only be determined by the psychiatrist through the constant observation of highly trained and intelligent nurses. Where is there a nurse who would refuse to take a case of typhoid fever, of puerperal conditions, of chronic interstitial nephritis with mental disturbance, and yet these disturbances do not differ materially from those of the so-called

*Read before the Mid-Winter Meeting of the Massachusetts State Nurses' Association, February 18, 1922, at New England Women's Club Rooms, 585 Boylston Street, Boston.

insane, whom the same nurse would probably decline as patients. This attitude is not to be wondered at, for as Thom very aptly reminds us, it is only a few years—perhaps ten—that psychiatry has been associated with general medicine. But now we meet with conditions requiring mental nursing not only in the special hospitals for mental diseases and in the community, but in its general hospitals, in the industrial field and in the schools, where nurses skilled in mental hygiene are to take their place in the field of preventive medicine.

There are two things I want to impress upon you. First, I want to disassociate the idea of training in mental nursing from that of the care of the so-called insane or “crazy” people—that is an infinitesimal part of your work as a nurse. It has been said that the brain is like a good piano badly played upon. Mental disturbance requiring the most skilled nursing may often be the result, not of a defective or diseased brain, but of disease of some particular organ of the body, forming toxins which, in the circulation, play upon the brain and produce mental symptoms. Second, to have mental nursing one of the required subjects in your training would not mean that you were to be relegated to State Hospitals. It would only mean that you were to get there a part of your training, to enable you to better take care of mental disturbance, no matter in what form it might appear.

Few people, even among the medical profession, have any idea of the prevalence of mental and nervous diseases. Do you realize that in Massachusetts, in the year 1920, one out of every twenty adults who died in the entire State, died in a State Hospital for mental diseases? and twice as many enter and leave the hospital as remain to die there? This means that one out of every ten of our adult population is at some time during his life, a patient in a hospital for mental and nervous diseases. And this is not taking into account the unrecognized cases, the neglected cases and the cases receiving treatment in their own homes! How many of these deaths from mental disease might have been prevented by early recognition and intelligent nursing? Certainly, training in mental nursing is proportionately more important than training in obstetrical or surgical nursing. And yet not one general hospital training school in the State requires any training in the care of mental cases.

The situation in the State at the present time in this branch of work is deplorable. It is with great difficulty that a physician can obtain the services of a nurse trained in the care of the mentally sick. The difficulty is so serious that many patients are sent to State Hospitals who might be nursed in their own homes away from surroundings suggesting mental ill-

ness. Why is this so? The usual answer made by the nurse is: “They are difficult cases. Why should we take them when we already have more than we can do with the medical and surgical cases?” That is not really the reason. I do not believe that nurses train for their profession to the end that they may pick and choose the easy or agreeable cases. To be sure, nurses now specialize in surgical work, in obstetrical work, or typhoid, or tuberculosis cases, but that is after they have received their general training and have registered. The undergraduate does not prepare specially for any one branch of nursing any more than the undergraduate physician devotes himself to a single specialty. It is not possible for either of them to know whether they are going to be more efficient in one branch of the service than in another until they have had the general training upon which all the rest is based. All specialties are interdependent. Now what is most regrettable is the fact that most training schools for nurses do not require the study of the care of mental and nervous diseases, but leave these subjects entirely out of their curricula. The nurses, therefore, not only lose the opportunity to find out whether they are specially adapted to this important and profitable branch of the service and would like to choose it for a life work, but they are deprived of what should be an important part of their training for general nursing, and a large class of patients are left without the service which all nurses should be able to give. For one of the strongest reasons for including mental hygiene in the education of nurses is that it would be of value to every nurse to be able to apply the principles of the care of mental and nervous cases to her every-day patients. There is scarcely a patient to whom a nurse is called to-day who has not an element of mental or nervous instability, especially when mind and body are weakened. A lack of education along these lines makes the case much more difficult for the average nurse. Society is like a complicated machine made up of millions of parts, and the members of society with mental troubles are defective parts of that machine which prevent its working smoothly. But they cannot be scrapped like the defective parts of a machine merely because they clog the social machinery, for they are human beings. They generally feel themselves to be out of adjustment, and suffer accordingly, for by the law of our nature, we can only be happy when we are filling our normal place in the scheme of things. The intelligent nurse helps to repair these defective units that they may be replaced in that part of the social machine where they are best able to function.

It is a great satisfaction to help bring the unsettled mind back to normal, and requires a

much higher training than to assist in the cure of physical ills. The mind is more interesting than the body to study, to treat and to nurse.

A nurse thoroughly trained in mental health work in all its branches has one of the greatest opportunities for service that can be given to anyone, opportunities which may be extended into the families and homes of her patients and into the community at large. The day is not far distant when she will become a teacher of mental health in the family and in the community. It is the nurse who, in a great measure, will be responsible for starting the child on the road to mental stability, and the training which a nurse can give to a child from birth, and especially during its school life, may make success or failure when that child enters society and has to face the obstacles and competition of adult life.

Education in mental health, in addition to enabling the nurse to understand and handle her patients much better than she would otherwise be able to do, would also enable her better to handle herself in the presence of nervous and apparently unreasonable patients. Few nurses today know enough of mental hygiene to conserve their own nervous energies by taking proper care of themselves so that they are not unnecessarily irritated and fatigued by these trying cases whose behavior in illness varies from the normal standard. These conditions a nurse with a suitable training in mental hygiene should meet successfully and cheerfully. Those who have had this training have a storehouse of reserve force which they may call upon under the most trying circumstances. The lack of mental training is a real neglect in the nurse's education and shows a want of appreciation of the needs of the patient and of the nurse herself, as well as of the trend of the ideals for which she is working.

The nursing in our mental hospitals today is gradually improving but it is still far from satisfactory. Recently, in addressing a committee, I made a statement that we should have a higher grade of nurses in our State Hospitals for the mentally ill; that, as a whole they were not up to the standard of general nurses, though I stated that among them were many who were well-trained and efficient, and whose services were invaluable. No words can express the appreciation and gratitude of the patients and of their families and friends for what these devoted women are doing. It is to be hoped that the time is not far distant when their associates will be given equal training to theirs and that the highly specialized and often most interesting work in our mental hospitals will be done by nurses, trained or in training, who are equally faithful and intelligent. But I added in my statement to the committee that we have many so-called nurses and attendants in mental hospitals who are ignorant, lazy, and

stupid—a floating population of low-grade individuals, who know little and care less about the scientific nursing and humane care of these mentally ill people. This remark of mine was somewhat misquoted in the newspapers, and I was criticized by one of the leading members of your profession for having attempted to overthrow the morale of the nursing schools in the State Hospitals, which are struggling against long odds to establish high ideals, without much support or encouragement from the nursing profession in general. This critic has not appreciated the fact that I was attempting to enlist the support of this committee for constructive measures to raise the standard of nursing and better educate the student who has chosen to devote her life to the amelioration of suffering.

There was no higher call during the war—there is no higher call today in time of peace—than that of the nursing profession. But this is a call to help all who are ill or suffering. There is no class of patients who can be benefited more by tactful and intelligent nursing than the mentally ill, for a large portion of mentally nervous disorders are curable, and all can be benefited by proper care and treatment. There is no class of patients for whom the physician alone can do so little and the nurse so much—where, in many instances, the doctor is helpless without the nurse. No two cases are alike—few can be early classified—and the call for quick decision, tact and initiative on the part of the nurse is much greater than for any other type of disease.

There is no class of patients so large today as that of the mentally ill—mental diseases call for more nurses than all other diseases put together, for there are more beds for mental patients in the hospitals of the United States today than there are in all our general medical and surgical hospitals added together. So have not we, who are working in the cause of the mentally ill, a right to ask that nurses be educated in the care and treatment of nervous and mental patients as well as of other patients, and has not the nurse who gives several years of her professional training, a right to demand that her education be rounded out and completed, that she may take her place with these patients as well as with those suffering from other ills?

The demand for nurses with psychiatric training is more than doubling each year. If nurses are not given this training how are we to supply the demands of the industrial plants, the hospitals, the courts, the charitable organizations, the schools and the community? Every public school requires a nurse with psychiatric training, and the demand is always likely to be greater than the supply. Indeed, so great is the necessity for a better understanding of mental problems in the schools that it is safe

to say that we must go farther and not only demand that school nurses have psychiatric training, but we shall very soon also require that our teachers shall have some knowledge of psychiatry and mental health, and include these subjects as a part of the curriculum of every normal school and college. The number of students who break down under the present courses of study is alarming. It is well for the nurse to understand one or two of the causes which play an important part in the breaking down of our present-day society: I will mention two that have been pointed out by two great men. First, the great Italian, Bianchi, emphasizes, among other things, the stabilizing effect of work on the mind and deplors the prevailing conception that the fewer hours we have to work, the better off we are. He says, "This is the view which politicians and labor leaders—to promote their own selfish interests—are impressing the public. The result is that the shortening of the hours of labor, instead of giving leisure for home duties and family life, is deteriorating character and mental health, as the free hours are devoted to loafing. 'Work,' he says, 'the great stabilizer of the nervous system, is abhorred and shirked more and more—a sad perversion of the ideal aimed at in the early agitation for the eight-hour day.'"

The great French authority, Pierre Janet, says the present-day society has another factor to contend with which results in the breaking down of many minds and the resort to alcohol, drugs, etc. He says, "I have already had occasion to point out in this connection, a type of mental overwork that is typical of the age in which we live. The philosophic ideas in regard to the quality of man have brought to a common level, the ambitions of all classes. They have subjected all minds, no matter what the caliber, to efforts that our fathers never thought of making in the same manner." A dramatic author once said: "Several generations are required to make a minister out of a janitor's son." . . .

If we could make the social struggle less severe; if we could check the desire to attain social position too rapidly, and if we could discourage dangerous ambitions, could we not unite what now seem irreconcilable: freedom of thought and tranquillity of beliefs? These are great questions and more closely linked to the problem of alcoholism, and also that of race suicide, than is commonly supposed.

The dictum that "All men are equal," a mistranslation of the "right of all men to an equal opportunity," on which our democracy is based leads many to strive to compete much beyond their mental and physical strength. The result of instilling this idea that all are equal to shouldering responsibility or reaching equal heights into the minds of those who are not

stable, who are not gifted with the power to compete with their fellows is that they are forced to the front and encouraged to take positions and responsibility they never should take. They fall by the wayside one after the other, some sooner, some later, and many of the patients today in the hospitals are the victims of this application of the democratic idea. They have believed that all men are equal mentally and physically, only to find too late that they have limitations which should have been recognized early in their lives. And here is another field for the properly educated nurse, who has daily contact with the unstable child or adult, and who should be able intelligently to size up their limitations, and at least in the case of the child, help him to avoid the fatal result of too great ambition, and later the assumption of too great responsibilities.

The difficulty in interesting nurses to take training in mental health is due, in the first place, to prejudice—to the prejudice of the nurses themselves and the community at large—against these unfortunates. This prejudice dates back to the dark ages when the mentally afflicted were supposed to be possessed by evil spirits and were tied to the pillars of the churches and whipped by the priests—whipped to drive the devils out of them. It was this tradition which later led to the abuse of the mentally ill in their homes and in institutions, for whipping had been allowed by the churches and the towns also were permitted to chain these poor unfortunates in the almshouses and prisons—so why should not the ignorant attendants punish and maltreat them? Even in comparatively recent times, these people have been treated, not as patients, but as dangerous malefactors, relegated to almshouses and prisons, where they could do no harm—with no thought of the harm that was being done them. That prejudice, itself based on superstition, prevailed all over the world, and its influence is still felt by the nurses of today. And why not? Has stress been laid during the training of these nurses upon the fact that the brain is only one of the many organs of the body which can become diseased the same as the liver or lungs or kidneys? Have they been told that diseases of the brain are the same in medical and nursing care as diseases of any of the other organs of the body? The brain is the most highly developed organ of the body and its diseases call for the most scientific nursing. The study of the care of mental illness requires a higher intelligence and education than of tuberculosis of the lungs or disease of the kidneys, etc., because we have in the brain not only a possible physical condition in a very complex organ, but a psychic condition. Those who treat these cases must understand not only the organic brain, but its functions—its variations from normal and its susceptibility to environment. A

large portion of cases of so-called brain disease show no sign of disease at autopsy. It is in this large group of cases that the study of the individual and his environment rather than of the brain must be made, and the treatment and care directed accordingly. Psychiatry is such a deeply interesting study that once a physician really enters the realm of mental medicine he rarely leaves it for any other branch. In fact, I know of no man who has ever left the practice of psychiatry for any other specialty after having gone into it deeply enough to understand what it means. I believe it would be the same with the nurse, and that if the nurses should voluntarily make the study of mental nursing a part of their curriculum, or if it should come to be a required subject, many would be found who would choose it for their life work, because the field is so tremendous and so interesting, and they can accomplish so much good.

There is one important point which must not be forgotten in speaking of the desirability of education of nurses in mental health work, and that is the benefit to the thousands of patients in our State Hospitals—State Hospitals for mental diseases today, but State Hospitals for Mental Health tomorrow. These hospitals are greatly in need of nurses with skill and scientific training, and their training schools will undoubtedly develop to meet the demand which is bound to come for training affiliates from the general hospital training schools as well as the demand for post-graduate courses for registered nurses.

The whole number of nurses and attendants employed in the ward service of our State Hospitals wholly in the Department of Mental Diseases for the year ending November 30, 1921, was 1464.76, an increase of 211.67 over the previous year. There were 72 graduates only in this group. There were 3.61 rotations in this group compared with 4.18 rotations the previous year, and the average length of the interval between rotations was 3.35 months, as compared with 2.90 months the previous year. The affiliations in our State Hospitals are as follows:

Nurses Graduated in		
Institution.	1921.	Affiliations.
Worcester Hospital	13	Boston City Hospital
Taunton Hospital	13	12 months' service at Boston City Hospital
Northampton Hospital	5	12 months' course at State Infirmary, embracing surgery, diseases of children, obstetrics and gynecology
Danvers Hospital	6	Bellevue and Allied Hospitals
Westborough Hospital	4	Mass. Homoeopathic Hospital, one year's instruction in surgical, gynecological, obstetric, and pediatric nursing

Institution.	1921.	Affiliations.
Boston Hospital	17	Boston City Hospital, 12 months' training in contagious diseases, obstetrics, operating room technique, general medical and surgical
Psychopathic Hospital	0	No training school
Grafton Hospital	9	Boston City Hospital
Medfield Hospital	4	(female) Bellevue and Allied Hospitals
Gardner Colony	0	
Monson Hospital	1	Bellevue and Allied Hospitals
Foxborough Hospital	0	No training school
Massachusetts School for Feeble-Minded	0	" " "
Wrentham School	0	" " "
Bridgewater Hospital	0	" " "
	72	

While the foregoing table represents the affiliations, one must not be led to believe that the affiliation is mutual. For not one of these general hospitals sent to the State Hospitals, to which they are affiliated, any pupils.

A second reason why we find it difficult to get good nurses for mental cases is that the education of the physicians themselves has until recently, been neglected. It is only within the last year that psychiatry has been made a required subject in Massachusetts medical colleges, and a law has been passed making it obligatory, beginning in 1923, for all physicians to pass an examination in psychiatry before they can register to practice in the State. It is no wonder that physicians have done so little in mental medicine when they have not been trained to recognize mental diseases, and they have naturally not expected their nurses to understand mental nursing. Now that psychiatry is an important part of the physician's training, the younger men, at any rate, will be demanding nurses competent to look after their patients. It is a part of a program for preventive medicine.

Another important part of the program to meet present-day medical needs is that, as physicians are obliged to pass an examination in psychiatry, so nurses must qualify in psychiatric nursing before they can register to practice in the State. This training would give the nurse a better chance to deal successfully with her cases, mental and physical. It would make her one of the "sentinels of mental health," as Donald Laird puts it, and help to afford an opportunity for psychiatrists, who now concentrate their efforts upon institutional cases, to turn their attention to the community and become real hygienists.

The physicians, newly awakened to the importance of mental disease, and especially the young general practitioner who has himself been trained in psychiatry, will demand that his nurse shall at least know how to observe and report early mental symptoms, and care for

incipient cases of mental disease, often preventing their further development. *This* is a very important branch of mental hygiene, and no one has a larger part to play in it than the well trained general nurse, if she has the vision to rise to the occasion and be prepared to meet the call which is already becoming more and more urgent. The future development of mental hygiene, not only in private practice but in public health work in the school, in industrial medicine, and in the community, is assured. Is the nursing profession ready to rise to this demand, or will it be necessary to create a new profession to meet it? If the leaders among our nurses demand both undergraduate training in psychiatric nursing for all general nurses and post-graduate training for teachers and specialists, there is little doubt that the hospitals will meet them half way and furnish it.

I believe that an exchange affiliation of the General Hospitals with the State Hospitals would be of great mutual benefit, furnishing in both general and mental hospitals more intelligent nursing care. In the State Hospitals it would be the greatest encouragement to the faithful and efficient nurses now on duty. Our fourteen State Hospitals graduated in the year 1920 only 72 pupils out of an average daily ward service of about 1465.75, including nurses and attendants. These State Hospitals have some affiliations with General Hospitals, but the general hospitals send no pupils in exchange for those who go to them for training in obstetrics, etc. It is a crime and a blot on our civilization that patients in mental hospitals have not long ago been placed on the same basis of medical care and nursing as patients in our general hospitals. When the history of the State Hospitals is finally written, an intelligent community will wonder how the present staffs of medical men and nurses have accomplished so much in the care and treatment of the patients, handicapped as they have been. They certainly should be awarded distinguished service medals for having held the fort for so many years before the arrival of reinforcements.

I have permission from the Rockefeller Foundation to tell you that in a report on "The Education of Nurses in this Country," which they are soon to publish, they recommend that all nurses shall have a course in mental hygiene, including at least three months in hospitals for mental diseases allied to general hospitals, before they receive their diplomas. This is a great step, and unless I am mistaken, no recommendation made by the Rockefeller Foundation along the lines of medical work or improvement has failed to be favorably acted upon.

SUMMARY.

1. Psychiatry is no longer confined to asylums, prisons, almshouses. It is now one of the foremost problems of social and preventive medicine and is playing its part in educational, industrial, judicial and military organization.

2. Mental illness does not mean so-called insanity. Mental symptoms are frequently part of the picture in typhoid fever, puerperal conditions, autointoxication, and results of poisonous substances taken from without into the body.

3. Psychiatry and psychiatric nursing deal with the individual as a whole rather than with some particular organ.

4. The final analysis in every case, whether it be medical, surgical, obstetrical or what not, has a mental aspect which needs to be taken into consideration: (a) The suicides of chronic invalids. (b) The marked depression seen in cardiac and nephritic cases. (c) The exaltation of the hyperthyroid cases, also seen frequently in tuberculosis. (d) The delirium of typhoid fever. (e) The confusion and mental deterioration seen in brain tumors. (f) The hallucinations seen in toxic conditions. These are all part of the picture produced by the inevitable mixture of mental and physical conditions.

5. The mental atmosphere of the home can be best studied by the nurse. It is she who comes into most intimate contact not only with the patient and the immediate members of the family, but frequently she acquires a most intimate knowledge of the patient's personal life, including his worries, anxieties and the problems which he has to meet. With training pertaining to mental health of patients, the nurse can render reports which would be invaluable to the physician or surgeon in his task of making differential diagnoses. Hysteria, for example, may assimilate any symptom from the category of medicine, and it is only after a long period of observation by one who is familiar with mental reactions, that these symptoms can be intelligently interpreted.

6. I do not appeal to you to enter the field of neuropsychiatric nursing on the basis of any altruistic motives nor do I hold out at this time, any economic advantages which might result by entering this field. Rather would I lay stress on the fact that it is your duty as members of one of the noblest of professions to neglect no opportunity to determine for yourselves whether or not you have a special interest and leaning toward psychiatric nursing, and you are also deprived of the reward and the satisfaction that comes from success in nursing a damaged personality back to health and happiness.

PYELOGRAPHY: PRELIMINARY REPORT.

BY OSWALD S. LOWSLEY, M.D., NEW YORK.

SHORTLY after the perfection of methods to view the inside of the bladder and to pass catheters into the ureters, urologists began to use opaque substances in conjunction with the x-ray to outline the kidney pelvis. The first solutions used were the colloidal silver salts. Collargol was the favorite of these. Urologists had not been using this chemical long before they appreciated the fact that there were certain definite unfavorable reactions following its use. This led to animal experimentation by Keyes which definitely showed that the collargol was apparently absorbed and redeposited under the capsule of the kidney. It then became the site of inflammatory reaction which in many cases was of a serious nature.

Argyrol, another colloidal salt of silver, was used in the same way and with the same result although not so marked. The pictures obtained by using argyrol were not nearly so clear as the collargol pictures. Many attempts were then made to introduce other substances, chief among which were argentide introduced by Young of Boston, and thorium citrate proposed by Burns of Baltimore. This latter group of substances was not so harmful as the first group mentioned but did, however, give rise to very considerable local and general reaction which sometimes assumed serious proportions.

At this time in the development of pyelography, urologists became chary about injecting both kidneys at the same time and used the gravity method of introduction so as not to over-distend the kidney pelvis. Later Braash of Rochester, Minn., introduced sodium bromide which was found to give quite satisfactory pictures with the x-ray and which did not result in nearly so many local or general reactions following its use. In the meantime, at the clinic in the New York Hospital sodium iodide became general in its use and we found clinically that the local and general reactions were not nearly so numerous as with any of the other solutions that had been tried. It was also observed that the pictures with sodium iodide were much clearer and better in every regard than those produced by the use of sodium bromide.

Upon reviewing the literature it was discovered that some years ago the use of sodium iodide had been advocated and an extensive and important research was written on the subject by Cameron. This work had been overlooked by most urologists.

In the past two years we have done more than five hundred pyelographies and of these cases there were only seven that had elevations of temperature, although most of the patients

suffered slightly for a few hours from the distention of the kidney pelvis.

Having noted that the temperature reactions and the discomfort of the patients were less after the use of sodium iodide we decided to do some experimental work to determine which chemicals were most suitable for pyelographic work.

Beef kidneys were donated to this department by Wilson & Company. The following substances were injected into them after which an x-ray was made to determine the opaqueness of the substance used:

1. Sodium salicylate.
2. Iron pyrophosphate.
3. Potassium citrate.
4. Ammonium bromide.
5. Potassium iodide.
6. Sodium bromide.
7. Sodium iodide.

A number of other chemicals were used but they did not cast sufficient shadow to be of importance in this experiment.

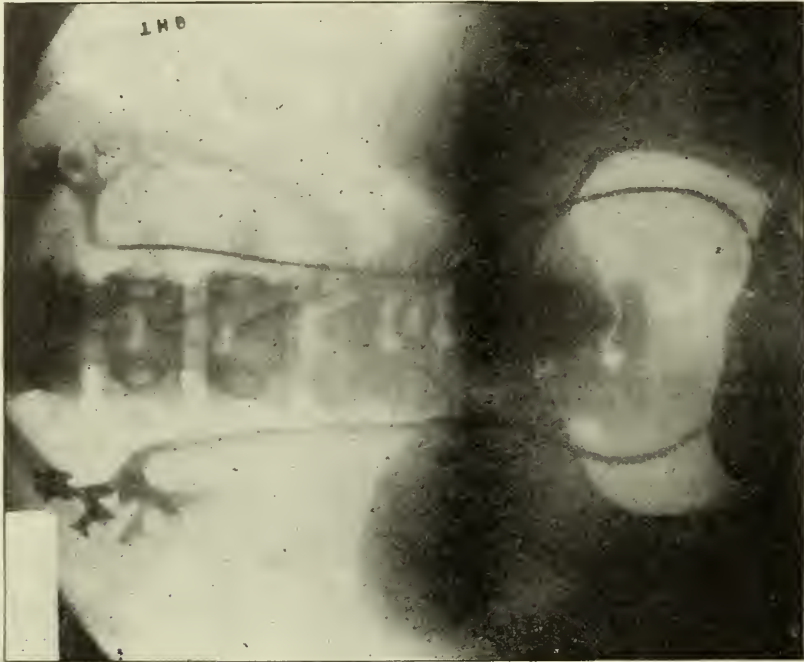
RABBIT EXPERIMENTS.

Rabbits were used as the medium for determining the amount of irritability to the renal epithelium caused by the various drugs. It is our practice to anesthetize the rabbit with ether, expose both kidneys through a lumbar incision, removing one kidney for a control and injecting the other kidney pelvis with the material chosen until the kidney is seen to expand under pressure. This is easily accomplished by inserting a hypodermic needle through the wall of the ureter which is sufficiently large to allow of this procedure. The first three drugs—sodium salicylate, iron pyrophosphate and potassium citrate—were found to be somewhat irritating and did not cast a sufficiently good shadow to be of any considerable importance. Ammonium bromide gave a most excellent shadow but caused a complete necrosis of the kidney into which it was injected. Potassium iodide was found to be exceedingly irritating. Sodium iodide and sodium bromide gave the most satisfactory pictures with the least amount of irritation, with the balance very decidedly in favor of sodium iodide.

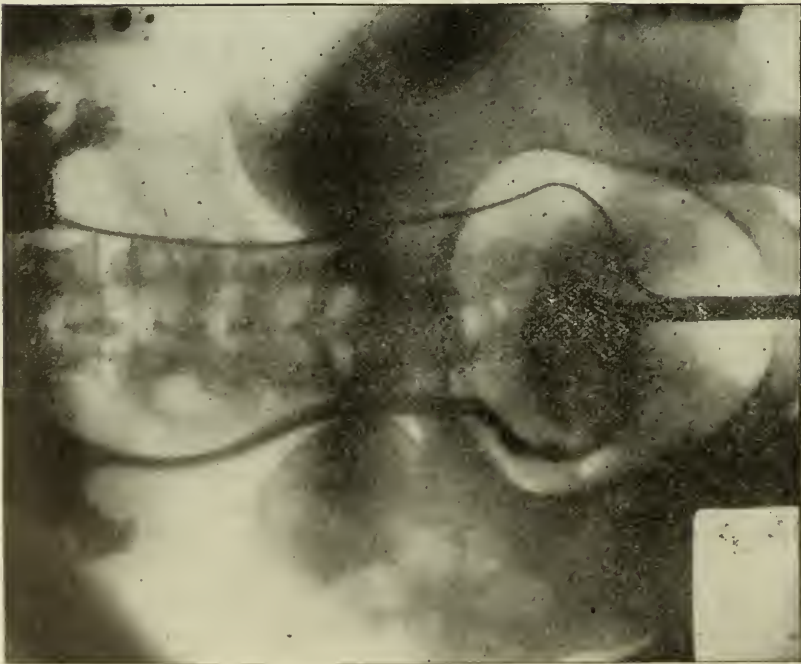
Note: These rabbit experiments will be quoted at length in a further communication.

The following is our method of procedure in doing a pyelogram:

The interior of the bladder is viewed with the cystoscope and any abnormalities existing are noted. Lead catheters are then passed into the ureters to the kidney pelvis, if possible. Specimens collected are preserved for chemical, microscopical and bacteriological examination. A kidney functional test (phenol-sulphone-



Normal Kidney Pelvis, on Each Side Showing Beautiful Flower-like Calyces.



Stricture of Ureter (Pelvic Portion).

phthalein) is then performed, after which the radiographer takes two pictures, one of the kidney and upper ureter, the other of the bladder and lower ureter before any opaque substance is introduced. If stone in the ureter is suspected, a double exposure plate is taken after the method of Kretschmer. By following this method a stone in the ureter will be in apposition to the lead catheter and then the x-ray tube is moved laterally. If there is a stone in the ureter it will move with the catheter. If the shadow is cast by an object above or behind the ureter, it will not be in exact apposition to the catheter in the second picture, due to the change in angle. Then the opaque material is introduced under gentle pressure until the patient states that a sense of fullness is felt in the back. This is done simultaneously on each side and as soon as the sense of fullness, above mentioned, is noted, the injection stops and the picture is taken immediately, both of the kidney and the upper ureter and of the bladder and lower ureter.

After this has been done, the patient is placed in the sitting posture with a plate so placed that its middle is at the crest of the ilium, and therefore the entire course of the ureter, a portion of the bladder, and the entire kidney are included in the picture. Then the x-ray catheters are slowly withdrawn, sodium iodide being injected into the ureter during the process. When the ureter catheter has been withdrawn to a point just within the ureter orifice, the picture is taken, and in this way any abnormality in the contour of the ureter or the position of the kidney will be brought out, as is splendidly shown in some of our pictures.

As soon as the picture is taken, the catheters are reintroduced a slight distance and the sodium iodide drained off. The instrument and catheters are then removed.

Most of our patients complain of a considerable amount of pain for a few minutes, which may extend into several hours in certain cases, but in only seven cases have we had elevations of temperature above 100 since we have been using sodium iodide as a medium for pyelography. The two photographs show the results obtained by this method.

THE IMPORTANCE OF EARLY OPERATION IN CONGENITAL UMBILICAL HERNIA.

By LEIGH F. WATSON, M.D., CHICAGO.

In small congenital umbilical hernia, the outlook is fairly good if the condition is recognized early, the operation undertaken while the sac is still moist, and before the hernia has been increased in size by the taking of fluid into the stomach. Unless the hernia can be reduced,

and the opening closed by operation, the prognosis is very grave. Resection of viscera and incomplete closure of the defect is usually followed by death. Infants with large congenital hernia are often stillborn, or die soon after birth. If other viscera besides the intestine are in the sac the infant has a small chance of surviving operative treatment. Infants with small congenital hernia are usually born alive, and the most favorable results have followed when operation has been performed during the first few hours after birth. The mortality is about 20 per cent.

The treatment of congenital umbilical hernia may be either mechanical or operative.

Small congenital umbilical hernias can sometimes be cured by palliative measures, which consist in keeping the parts clean and dry, and using a bland dusting powder or ointment. Pressure on the tumor is maintained by wide adhesive straps passing entirely around the abdomen. These can be most effectively applied if the child is suspended by his feet while they are put on. In this position he does not cry, there is no increase in intra-abdominal tension, and the hernia is easily reduced. When the skin becomes irritated from the straps, they should be temporarily replaced by a firm binder or elastic belt.

The operative treatment offers the best chance for a permanent cure in all patients in whom it can be used. Large hernias or eventrations, in which the viscera are irreducible and there is no chance of closing the opening, are inoperable. A few cases are on record in which the herniated liver has been successfully reduced and the opening closed (Telsemeick, Reuter, Mitchell, Suttner, Allen, Maunoury, Runge, and Baum). Stewart saw a case in which the liver was so firmly adherent to the fundus of the sac that reduction was impossible. Benedikt reduced the spleen successfully and Landrerer reduced the stomach.

The earlier the operation is undertaken, the more chance there is for recovery. Le Jemtel operated half an hour after the child was born; Maran within one hour; Dunlop and Phenomenoff operated an hour after the child was born, and MacDonald's patient was six hours old. In a study of 72 cases collected in the literature by Adler, where operation was undertaken in the first 24 hours, the mortality was 12 per cent., while after 48 hours it was 66 per cent.

The two methods of operation are the extraperitoneal and intraperitoneal.

The extraperitoneal operation is the one most frequently used because it produces the least shock and gives the lower mortality. The amnion and Wharton's jelly are separated from the underlying peritoneal layer of the sac, without opening the abdominal cavity. The edges of the hernial opening are freshened on both sides, the sac folded over and sewed in

place, and the muscle and skin edges brought together over it with strong sutures. The tendency of the wound to pull apart is lessened by applying firm adhesive straps around the body.

The intraperitoneal operation is used when, for any reason, it is necessary to open the abdomen to examine the viscera or to deal with peritonitis. If there is difficulty in reducing the liver, it usually can be accomplished by incising the linea alba to widen the opening, and by dividing the round ligament of the liver.

TREATMENT OF ASTHMA AND ASSOCIATED DISEASES IN CHILDREN.*

BY ALLAN R. CUNNINGHAM, M.D., BOSTON.

[From the Children's Clinic of the Boston Dispensary.]

By "asthma and associated diseases," I mean asthma, asthmatic bronchitis, and such miscellaneous conditions as may accidentally give rise to similar symptoms. The term "asthma" is one which is hard to define when applied to children, this difficulty being due to the fact that in young children, and especially in infants, bronchitis frequently produces clinical symptoms suggestive of asthma. Also bronchitis, beginning in infancy, or later, not infrequently becomes recurrent, may disappear spontaneously with age, or may be continued into the asthma of adult life. Of 38 patients questioned, 16 began in infancy.

As a means of differentiating asthma the percentage of eosinophiles was determined in 12 cases, only two of whom were at the time in the course of what might be termed an "attack." In none of these was the percentage increased. It is doubtful if eosinophilia can be considered of value in the differential diagnosis. Curshman's spirals are not often found in the asthma of children.

As allergy is accepted as a cause of a considerable group of asthma cases it would not be surprising if the term asthma became limited by practice to such as are of this nature.

The frequency with which allergy occurs as a real cause is shown as follows: Thirty-six patients were tested with pure proteins from the Arlington Chemical Co.; from twenty-seven to forty-five tests were made upon each patient, and all the tests were cutaneous. Eleven gave distinctly positive reactions to one or more proteins, with the formation of wheals at the point of inoculation. But the association of these proteins with the asthma could be confirmed in only six by the disappearance of symptoms when withheld, and one of these required, fur-

thermore, the use of vaccines before symptoms were entirely relieved. Thus about 17 per cent. of 36 cases were without much doubt due to allergy.

Of the six, two were due to cat-hair, one to wheat, one to raw egg and wheat, one to several kinds of fish, and one to chicken-feather. One other of the eleven has not yet had the proper treatment. He gives a strong reaction to dander.

Treatment is most successful when the offending protein is entirely avoided. If this is accomplished many patients show a strong tendency to lose their hypersensitive condition. Immunization is successful in some cases, but during the process it is as important to avoid accidental contact as by the first mentioned scheme. There are two methods of producing artificial immunity; one by subcutaneous injection at intervals of about 5 days,—the other by increasing doses by mouth. As suggested by others, immunization by mouth is the method of choice in young children, because it is so much less disturbing to them. The greatest value of immunization is in cases sensitive to epidermal substances, such as cat-hair or horse-dander, but milk and egg cases can also be treated in this way. Owing to the frequent spontaneous loss of the hypersensitive condition by avoiding contact with the offending protein, it does not seem desirable or profitable to attempt to immunize except possibly against milk, but if the spontaneous loss of the hypersensitive condition does not occur in two or three months then immunization may properly be attempted.

Since the number of allergic cases in this series is rather lower than other observers have reported, it may be that some of the cases not reacting might do so were more tests made. It is also possible that this group might be increased by the use of the more delicate intradermal tests. It does not seem that the dermal method should be followed exclusively even though its results seem considerably more reliable. It appears that many authors favor the intradermal method in all their tests, and it is admitted that occasional cases, which are allergic in nature, do not give positive dermal reactions. On the other hand are the cases occasionally reported of shock following intradermal tests.

In instances where positive reactions are not followed by improvement after avoiding the reacting proteins, any one of three interpretations may be made; first, that the protein has nothing to do with the asthma; second, that it is the real cause but has not been completely avoided; third, that it is only one of several causes, being associated, for example, with a secondary bacterial infection.

For patients not so improved autogenous vaccines were made from sputum and 20 patients were treated at intervals of about 5 days. These

*Read before the New England Pediatric Society, April 24, 1922.

patients received for a final dose anywhere from 200 to 400 million. The last dose should contain at least 400 million. Some had more than one culture and two or more courses of vaccine. The injections began with 50 million and were increased by this amount at each visit. Of these 20 a cure or very marked improvement took place in 7, or 35 per cent., thus demonstrating that such treatment is of considerable importance.

For those treated, who did not improve, several explanations exist; first, some were not treated persistently enough; second, bacteria may not have been the cause either wholly or partially; third, they may have been partly the cause and improvement depended upon some other undiscovered factors; fourth, the vaccine may not have contained the right organism; fifth, the offending bacteria may have been of types not readily producing immune reactions.

Cases of asthmatic bronchitis due to bacteria, if unimproved by the intensive use of vaccine, may be greatly benefited or permanently cured by a change of climate, either permanent or temporary. If the stay is to be temporary all symptoms should have been absent for a month, at least, before the patient is permitted to return to his home. But even a short absence sometimes seems to give sufficient stimulus to the healing impulse. Improvement may not be immediate; patients should expect that two or three attacks may occur at the new residence and should not be allowed to give up this means of treatment on that account. Five of our patients were boarded out by the Social Service with the general directions that the place chosen should be inland and subject to a less humid atmosphere than Boston. They went to Wrentham, Barre, and Sharon, Mass., and to Redding, Conn., and to New Hampshire. Four are now well and one has been much improved.

Fifteen cases in all, which were probably due to bacteria, are now either well, or, in two cases, practically so; seven from autogenous vaccines, four by change of residence, and four by spontaneous improvement.

A third group consists of those who have asthmatic symptoms from miscellaneous causes. These have to be weeded out by a very careful study of the history and a thorough physical or laboratory examination. They can then be treated, either with or without success, according to the nature of each, but at least with the correct diagnosis. This group is represented by six cases; one of hypothyroidism, one of debility, and myocardial weakness due to puberty, two in whom the neurotic factor was well established, one due to disease of the tonsils, and one to disease of the maxillary antrum. All are free from symptoms except for the two neurotics

These are sons of an epileptic mother and become asthmatic only during fits of temper. The case of hypothyroidism complained of asthma, constipation, nervousness and irritability, and her skin was of coarse texture. The principal ground for making this diagnosis was the result of giving thyroid, all symptoms, thereupon, disappearing very promptly. There was a recurrence of them upon omission of the tablets and upon substituting pituitary gland tablets. She has now been well for several months.

The case diagnosed as debility and myocardial weakness due to puberty, showed asthmatic symptoms only after exercise. The diagnosis was borne out by the rapid heart action and her general appearance. Digitalis and graduated exercise, by rope-skipping, was followed by a disappearance of all symptoms.

One patient was cured by tonsillectomy apparently, and one by drainage of a diseased antrum, a condition which showed no localizing symptoms of its own.

There were 33 patients with whom a fairly complete course of treatment was carried out: 24 in all were relieved by treatment or spontaneous recovery; 9 were not definitely relieved. Partial records from 10 others are quoted from.

CHOLESTEATOMA OF THE TEMPORAL BONE, WITH THE REPORT OF AN UNUSUAL CASE.

BY JEANNETTE M. SHEFFERD, M.D., FALL RIVER, MASS.

Otolaryngologist, Union Hospital.

CHOLESTEATOMA of the ear has been known to pathologists since the writings of Virchow and Rokitsky, but there is still a great difference of opinion in regard to the etiology, except that they are accumulations of epidermis. Troltsch regards them as retention tumors. Bezold considers them the result of the ingrowth of the epidermis of the external ear through a perforation of the membrane into the tympanic cavity. Lentert distinguishes a real tumefaction and cholesteatoma brought about by the implantation of the remnants of the tympanic membrane which are covered with epidermis (Politzer). It is claimed that cholesteatoma may be primary or secondary, but from the report of cases, primary occurrences are very rare compared with secondary accumulations. There has been some question as to whether these tumors embedding the petrous portion of the bone and penetrating the tympanic cavity do so during their growth or whether they originate in the middle ear and wear away the bone through constant pressure.

Lucas reported a case of primary cholesteatoma, in which the growth originated in the mucous membrane of the tympanic cavity, and

in which there was no symptom of suppurative inflammation, nor was there a perforation of the membrane. Erdheim has also reported similar cases of primary cholesteatoma, but far the vast majority of cases reported show that the formation of these tumors is secondary; especially is this true in cholesteatoma of the mastoid antrum and cells.

"With perforation of the pars flaccidi the invasion takes place more easily because of the more highly developed band of cutis and epidermis extending from the superior wall of the meatus to the membrana tympani. In other words, a more extensive growth of epidermis is found in this part than in other parts of the meatus (Politzer)."

These growths may attain a considerable size without showing any sign of necrosis or absorption of the bone, and often one may find, in addition to sclerosis, defects and excavations in the bone. In fact, the necrosis may be so marked as to leave bare the dura, lateral sinus and semicircular canals. These changes in the bone are produced partly by the continuous pressure of the mass and partly by the atrophy of the bone which is associated with the pathologic condition in the lining membrane of the middle ear. In the case I have to report, the tympanic cavity, the mastoid process, and part of the squamous portion of the temporal bone were converted into one common irregular cavity.

The patient was a woman twenty-five years of age, Portuguese, a housekeeper, married, four children, the last one seven weeks old. She was referred by her family physician who said she had a discharging ear and a facial paralysis. On examination of the left ear I found it contained a large polyp and a slightly purulent exudate. The polyp was about the size of a bean and appeared to come from a perforation in the superior portion of the drum. This was difficult to determine exactly because of the size of the growth. She said the ear had been discharging about seven weeks and her only complaint was "too much headache." There was but little nausea, slight nystagmus, and vertigo. Both of the latter were increased by induction. Careful questioning brought forth the fact that she had had a discharging ear when a child, and slight pain since, but not enough so that she had ever complained to her husband, to whom she had been married six years, and he did not know she had ever had any previous trouble.

The polyp was removed by the use of an ear snare, revealing a large perforation of the drum. The removal of the polyp did not leave a clean opening, that is, there seemed to be something back of it. A probe could not be introduced through it without pressure but came in contact with a fibrinous, pulpy substance, which did not bleed, and could not be cleared away with a

curette. She was advised to enter the hospital for a mastoid operation and to this she consented.

Operation.—Usual skin incision was made, the bone bared, but on attempting to use the chisel and mallet, as is the usual procedure in removing the cortex of the mastoid bone, the bone was found to be so soft and friable that the mallet could not be used; in fact, the whole cortex broke away as easily as an eggshell, and the chisel was not used in removing any part of the bone. It was simply picked away with the curette and rongeur. On removing this thin layer of bone there was revealed a white, shining substance, pulpy in texture, and resembling very much the appearance of a Bermuda onion. This proved to be an extremely large cholesteatoma, about the size of a small hen's egg, and broken down and soft in the center. The walls of the tumor were dissected from the cavity, which occupied the tympanic cavity, the whole mastoid process, part of the squamous portion of the temporal bone and dipped deeply into the posterior cerebellar fossa, converting all this area into one enormous cavity. The inner wall of the cranium over the lateral sinus was eroded and the growth adhered directly to the sinus for about one-half by three-quarters of an inch in area. Just above this space the bone was again eroded, baring the dura for one-half by three-quarters of an inch. This necrosis also occurred over the semicircular canals, and the facial ridge, although there was no evidence of a fistula. The growth dissected very freely from its posterior and middle portion well forward into the regions of the Eustachian tube. Here the substance of the mass became soft and ragged, but detached readily under a dull curette, leaving the bony surface clean and smooth.

The question now was how to cover such a largely exposed bone and prevent regrowth of the cholesteatoma. At the beginning of the operation the flap of periosteum had been carefully separated from both skin and bone and left free except posteriorly. This flap was tucked firmly into the posterior portion of the cavity and as far anteriorly as possible. A flap was formed from the posterior portion of the external canal and stitched to this periosteal flap and both were held snugly in place by gauze dressings. A small opening was left postauricularly and inferiorly for drainage.

The patient was in the hospital two weeks. Two days after operation the facial paralysis, which had been extremely marked, had disappeared and the headache gone, as were also the nystagmus and vertigo.

The usual dressing continued. Eight weeks after the operation the discharge had ceased and at this writing six months after operation, there had been no return of symptoms, the ear is dry and no evidence of cholesteatoma.

From the history of this case it is very evident that cholesteatoma of the temporal bone may exist over a long period of time with slight if any symptoms. This woman had worked in the mill before and after her marriage, only being absent from work during the periods of childbirth. How long she had had this cholesteatoma is of course impossible to say, but a week or two before the present ear symptoms came on she had quite a severe attack of grippe, sore throat, and a head cold, to which she attributed the facial paralysis and headache; and it was indeed difficult to convince either her or her husband that the ear had anything to do with it. The presence of the inflammatory condition of the throat and nose probably set up a like condition in the Eustachian tube and middle ear which brought about the swelling of the epidermic mass and led to the increased pressure which brought about her headache, paralysis, etc.

Similar cases are somewhat rare in literature, the striking feature of this case being the extensive absorption which must have gone along over a long period of time and short duration of symptoms. Politzer says that the prognosis of these cases depends on the location, the extent of the growth and the changes present in the ear. Cases are exceedingly rare in which a permanent cure is obtained after spontaneous expulsion of the mass or after conservative treatment. In many cases cure is not obtained until the middle ear spaces have been laid open by operative measure, and even this is not always successful. Bezold says relapses are most surely prevented when the cavity containing the mass is very large and exposed to the external atmosphere through a wide opening in the meatus or mastoid process.

124 Franklin Street.

Medical Progress.

THE PROGRESS OF NEUROLOGY.

BY ABRAHAM MYERSON, M.D., BOSTON.

PROGRESS in neurology in the late years has been definite though not in any sense startling or sensational. The war gave much impetus to the importance of this subject, since a very large percentage of the casualties were neuro-psychiatric. In the field of the organic diseases there has become evident a drift which is encouraging in that there is a dethroning of the fatalistic concept known as *abiotrophy*. Gowers, the father of this idea, placed the blame of the so-called degenerative diseases (progressive muscular atrophy, multiple sclerosis, lateral sclerosis, etc.) on the congenital inability of

parts of the nervous system to withstand the wear and tear of life; they die early, so to speak, and this dying early is the disease. Of late there is a drift towards the origin of these conditions in infection, and the Wassermann tests, and especially the spinal fluid examinations, have shown, for example, that syphilis may cause conditions which closely resemble true progressive muscular atrophy and true multiple sclerosis. But aside from syphilis the relationship of other infections or infective agents to multiple sclerosis, which has been especially singled out for attack, is such that at present the trend of opinion is decidedly that the histology of this disease indicates an infection rather than degeneration (Birley and Dudgeon). This opinion was freely expressed in the last meeting of the American Association for Neurological Research. Certainly, the spinal fluid findings, which are present in many cases of multiple sclerosis, increased protein content, increased number of cells, and the peculiar "paretic" gold sol curve are remarkably like the picture of inflammatory reaction.

The situation in the Parkinsonian syndrome, paralysis agitans, bears on this point, especially in its connection with epidemic encephalitis. It seems to have been firmly established through the work of a line of investigators, prominent among whom are Wilson and Ramsey Hunt, that the essential lesion of this latter disease is in the "paleostriatum" (that is, in the globus pallidus of the lenticular nucleus), which is an important gray structure at the base of the brain. Held to be a degenerative disease, dependent on the mystical and probably mythical abiotrophy, this view monopolized the field until very recently. What has shaken it are these facts: First, that there occurs occasionally with syphilis a condition resembling the Parkinsonian syndrome, and due to syphilitic involvement of the basal ganglia; second, that with epidemic encephalitis, and during the course of the disease, there is present in many cases a group of symptoms which have been called the paralysis agitans type with mask-like facies, tremor of the hands, and spasticity; third, and most important, it is now definitely established that a certain number of individuals "recovered" from epidemic encephalitis, develop gradually a syndrome, not to be distinguished clinically from true paralysis agitans.

The cause of epidemic encephalitis is still problematic, though it seems probable that the organism described by Loewe, Strauss, and Hirshfeld is responsible. These investigators have carried on a line of experiments, both in growing the organism and in the inoculation of rabbits, which, on their face, seems conclusive that a Berkefeld filterable micro-organism is responsible, and that this organism can be recovered from the scrapings of the nose during life.

Their work has been corroborated by Klinge and Davide, in Sweden, and to a certain extent by Levaditi and his group. If it becomes firmly established that this group of workers has isolated the micro-organism of epidemic encephalitis it will constitute a notable triumph for American medicine. Resembling poliomyelitis in some respects, the two diseases have been held to be one and the same by some clinicians and pathologists, but certain points of difference are evident. As Amoss especially emphasizes, anterior poliomyelitis is easily transmitted to monkeys by inoculation with the infected nervous tissue of man, whereas this has not been definitely accomplished in the case of epidemic encephalitis. Further, the immune serum of anterior poliomyelitis will neutralize the toxic substances of this disease, whereas the immune serum of epidemic encephalitis will not do this. It does not seem to the reviewer that the spinal fluid picture is the same in the two diseases. There is a stage in anterior poliomyelitis where there is a leucocytosis present in the spinal fluid. This does not seem to be the case in epidemic encephalitis, and, furthermore, the increase in cells is usually higher in poliomyelitis than in epidemic encephalitis.

The prognosis and sequelae of epidemic encephalitis are summarized by Goldman, of the Mt. Sinai Hospital, in the *Archives of Neurology and Psychiatry*, of May, 1921, as follows:

"1. Psychic functions, in some form or another, were disturbed in 55 per cent. of these patients.

2. Insomnia was present in 55 per cent. of the cases.

3. Tremor and irregular involuntary movements were found in 58 per cent. of the cases.

4. The deep reflexes were altered in 30 per cent. of the cases, and tonus in the muscles was disturbed in 18 per cent.

5. The cranial nerves showed residual signs in 64 per cent. of the cases.

6. Pupillary disturbances were found in 30 per cent. of the cases. Five patients had Argyll-Robertson pupils.

7. About 8 per cent. of the patients gave signs of progression at the time they were examined.

8. The mortality among the 145 patients admitted to the Mount Sinai Hospital was 20 per cent.

From these findings one might venture this tentative prognosis: Probably less than 20 per cent. of the patients, who become ill with epidemic encephalitis die during the acute stage of the illness, as usually only the most severe cases reach the hospital. Of those who survive the acute stage, about 10 per cent. may develop a progressive disease of central nervous system. The remainder will make a good functional recovery in from six to twenty-four

months, with the probability of progressive approach to normal after that period."

The Situation in Neuro-syphilis. The importance of this subject may be stated as follows: Syphilis ranks with tuberculosis, neoplasm, and the great plagues as a major affliction of mankind, and neuro-syphilis ranks second to no subdivision of syphilis in sinister standing. With the introduction of spinal fluid examination, and the use of Ehrlich's remedy, neuro-syphilis became both capable of diagnosis and treatment in a way hitherto impossible, and there was naturally stimulated a study of the subject that reached its height recently, and now awaits new developments for further increase. The following statements may be made as typical of the present attitude of neurology towards certain phases of neuro-syphilis: "Study of the spinal fluid should be carried out as a routine in all syphilitic patients, as an essential to intelligent treatment. Spinal puncture should be performed after the first or second course of arsphenamine, and should be repeated at least once before the patient is discharged, presumably cured. If this is done in every case of syphilis, and treatment intelligently administered according to the results obtained, the incidence of clinical neuro-syphilis may be reduced to an absolute minimum." This rather optimistic dictum is probably extreme, but it must be emphasized again and again, and then some more, that the spinal fluid may be positive when the blood is negative, and that the diagnosis of neuro-syphilis rests fundamentally, not upon blood Wassermann, but upon the spinal fluid examination, as well as clinical signs. Clinical evidence must never be disregarded for serology or spinal fluid evidence; at the same time that spinal fluid evidence is given a position of paramount importance.

Some syphilographers and neurologists believe that neuro-syphilis is on the increase. In this connection the statement is commencing to be made that insufficient early treatment is worse than no treatment at all; that giving small doses of arsphenamine, and insufficient doses of arsphenamine at first, stir up the spirochetes to greater activity. After the preliminary and very vigorous treatment, small doses are better than large doses. Many observers are opposed to mercurial treatment. As far back as Fournier and up to Gennerich, whose recent monograph is the best, latest, and most authoritative work on the subject, there have been men who claim that mercurialization predisposes the patient to tabes dorsalis and general paresis.

How shall neuro-syphilis be treated? There is no unanimity on the subject, and it may be said that each case is a law unto itself, and that no case except in the last stages of the disease should be discarded as non-treatable. Gennerich, to cite one author, disbelieves in the intraven-

ous method as having great value, and gives in great detail his own technique, which is a development of the intraspinal method. He uses sodium salvarsan in salt solution, withdraws a very large amount of spinal fluid, mixes the salvarsan salt solution with about 50 cc. of spinal fluid, and reinjects by gravity, keeping the patient absolutely quiet and in bed for two days, with the foot of the bed elevated. He gives precise directions as to dosage and technique. His results have not been duplicated by others and there is a wide difference of opinion in regard to the value of the treatment. Recently, Solomon, of Boston, has set forth his views on treatment, which the reviewer thoroughly commends. He believes that all avenues of approach should be utilized, including the intravenous, the spinal, the cistern, and the intraventricular approaches. This, of course, takes the treatment of neuro-syphilis out of the hands of the general practitioner, and out of the hands of the syphilographer, and puts it where it really belongs, in the hands of specially trained men. It may be stated that all methods fail in some cases, and any method including potassium iodide, which must not be forgotten as a therapeutic measure in neuro-syphilis, hits the needs of some individual cases. It is wise to try one technique after another, starting, perhaps, with the intravenous method, and passing along from intraspinal to intraventricular.

There are two techniques that have been introduced into neurology in the last few years and which deserve special mention. The cistern puncture, which has been so emphasized by J. B. Ayer, of Boston, is now accepted as a routine method of investigation of the central nervous system, which is relatively free from danger and easy of accomplishment. All reports bear out Ayer's claim in this matter and give it a special place of importance. Its therapeutic values are also special in that it renders access to the brain possible when changes in the spinal cord and meninges render such access impossible to the spinal puncture. It is probably true that this method is destined for great usefulness and will become part of the honored technique of medicine.

The second method introduced is the injection of air into the ventricle as elaborated by Dandy. Dandy's work has placed hydrocephalus on a new footing, in that he shows definitely that the foramina of Luschka and Majandi are necessary, and that when they are blocked hydrocephalus results, and that this blocking, as well as other lesions, can be definitely shown by the ventriculogram. In other forms of hydrocephalus meningeal adhesions can be definitely located by the air injection. As a result of his work the treatment of hydrocephalus has become possible surgically and good results are claimed by some writers.

It is a little early to follow Dandy in his claim that "it is now possible to localize practically every brain tumor at an early stage by means of (his) method of injecting air into the ventricles." He is emphatic in denouncing the routine performance of decompressive operations, which he considers as "the most harmful and indefensible operation in surgery." This revolutionary view is naturally not as yet acceptable. Time will tell whether the claims of this worker are justified or not, but certainly a great deal of hope is held out for the future of brain surgery by this technique.

The drug luminal needs mention as a method of treating epilepsy. This synthetic product, related to the veronal group, and introduced into American neurology by Dereum, has been widely utilized for the treatment of epilepsy. It has not lived up to the extravagant claims made for it, and it is not in any sense a cure for epilepsy, largely because there is no single disease "epilepsy." It is a good palliative remedy, better than bromides, but failing in many cases. In conjunction with bromides, and the regulation of diet and living, it affords the best method we have at present in those cases where organic brain disease of a definite type can be excluded, in the so-called idiopathic cases.

The situation in the functional nervous diseases has not been altered much in late years. Freud still holds a strong place in American psychiatry and some of his followers have out-Freuded Freud in a most remarkable way. Thus S. E. Jelliffe believes that multiple sclerosis can be psychoanalyzed and found to be dependent upon complexes and emotional stresses going on in the unconscious. The reviewer believes that Freud would be somewhat shocked, and greatly bewildered by the Jelliffe analysis, and the opponents of Freud may well take comfort in the work of Freud's followers.

The case of the returned soldier is costing the Veterans' Bureau, and incidentally the United States Government, a great deal of concern and difficulty. This is especially true of the psychoneurotic veteran. It is now three years and more since the war ended, yet there is a steady increase in the number of men asking for compensation and vocational training, who lay their "nervous" condition to the war. The larger part of these cases are genuine, yet it is difficult to ascribe, with certainty, the degree of disability sustained and its relationship to service. In how far is the present economic stress responsible? In how far is dissatisfaction with former social status and a yearning for a better social status, to be obtained through reëducation, responsible? A step forward in the treatment of these cases has been made in the Boston District, where an out-patient depart-

ment for the care of these psychoneurotic soldiers has been established. There can be no question that hospitalization is harmful to the majority of the psychoneurotic veterans, that a competent handling in out-patient departments is far better. The United States Public Health Service, in coöperation with the War Veterans' Bureau, is sending its physicians to this out-patient department for a study of its methods, and undoubtedly it will become part of the routine technique of handling the psychoneurotic veteran throughout the country.

Book Reviews.

Gynecology — Obstetrics. Practical Medicine Series, Volume 5. E. C. DUDLEY and JOSEPH B. DELEE. 1921.

Drs. Dudley and DeLee have abstracted all the more important articles on gynecology and obstetrics that have appeared in the past year. The book is, as usual, a most valuable reference book, and serves to place in a convenient form articles collected from medical works throughout the world.

The authors' caustic remarks on the various articles are not the least valuable parts of the book.

Synopsis of Midwifery. ALECK W. BOURNE, B.A., M.B., F.R.C.S., England. Obstetric Surgeon to In-patients, Queen Charlotte's Hospital, etc. Second Edition. New York: Wm. Wood & Co., 1921.

The author in his preface states that this little handbook "is an attempt to set the principal points of obstetrics before students preparing for qualifying midwifery examinations in a simple and concise manner."

The book covers the usual fields of obstetrics, and for the students' purpose of reviewing obstetrics quickly, it may prove of good service. For the most part the teaching is sound, and if it is used as an adjunct to textbooks on obstetrics it will prove of value, but if it is used merely to cram for an examination, it can only do harm. It is not the type of book that it is well to put into the hands of students.

Obstetrics and Gynecology. Edited by JOHN S. FAIRBAIRN, Oxford Medical Publications. London: Henry Frowde, Oxford University Press, 1921.

Fairbairn has brought together under various English writers the essential material for the study of obstetrics and gynecology. Part One consists of the Life History of the Female Reproductive Organs; Part Two, Normal Reproduction; Part Three, Abnormal Reproduction; Part Four, The Infant; Part Five, Diseases of Women; Part Six, Public Health, Social and

Medical Problems; Part Seven, Operations and Other Therapeutic Procedures.

The plan of the book is rather unusual in that it joins obstetrics and gynecology under one head and places the greater part of the obstetrics before the diseases of women. From the fact that it is a collective work with many authors writing on related subjects there necessarily is some overlapping. It is not to be expected that all the procedures and the technique given in this book will be agreed to by American physicians. It is interesting, however, to read in such an interesting form the English methods of doing obstetrics. The close relationship of the diseases of women to obstetrics is brought out very clearly and a means to minimize these conditions clearly set forth. The part on Public Health and Social and Medico-Legal Problems is a most welcome addition to any textbook. In the section on Operations, the contributors have attempted to put many procedures in relatively few pages, with the result that some of the descriptions of the operative technique are not as clear as one would wish for students' use.

It is a most excellent exposition of the subjects, and deserves a wide circulation.

Manual of Midwifery. HENRY JELLETT, B.A., M.D., and DAVID MADILL, B.A., M.B. Third Edition, with 20 plates, 570 illustrations. New York: William Wood & Co., 1921.

The third edition of this book appears with Dr. Madill as co-editor. What we said in regard to the second edition we feel only more strongly in regard to the third edition. It is a most valuable book, and American physicians interested in obstetrics will all do well to own this as a book of reference.

Individual Gymnastics. A Handbook of Corrective and Remedial Gymnastics. By LILLIAN CURTIS DREW, Director of Department of Corrective Gymnastics, Central Branch, Y. W. C. A., New York City; Instructor in Corrective and Remedial Gymnastics, Central School of Hygiene and Physical Education; Formerly Director of Department of Corrective Gymnastics, Teachers College, Columbia University, New York City; direction of Dr. E. H. Bradford, Boston, and E. G. Brackett, Boston. Illustrated with 100 engravings. Philadelphia and New York: Lea & Febiger, 1922.

Miss Drew's book shows a clear conception of purpose. It contains valuable material for the physical director as well as the physiotherapist. As a whole, the statements are accurate, clear and concise. Emphasis has been placed upon matters of interest, partly from the viewpoint of the physical director and partly from the viewpoint of the physiotherapist.

Along the educational line Miss Drew wisely

emphasizes: 1, the importance of teaching good posture; 2, the need and methods of stimulating interest in posture among school children; 3, the correct exercises and progression of these exercises for faulty antero posterior posture; 4, the value of the schematograph; 5, the school problems as related to posture; 6, the place of individual gymnastics in physical education.

Along the medical line, emphasis is placed upon: 1, visceroptosis and its treatment, so far as mechanical readjustment is of value; 2, scoli-osis; 3, lateral deviations; 4, the importance of the correct use of the feet; 5, exercise, mas-sage and diet for constipation.

The distinct features are: 1, the need and importance of knowledge of bodily mechanics for teachers of physical education as well as for the medical practitioner; 2, practicability of teaching bodily mechanics in the daily physical training period; 3, the methods of examination for diagnosis of the most frequent abnormali-ties found among children.

On Modern Methods of Treating Fractures (Including the Jacksonian Prize Essay on Bone Grafting). By ERNEST W. HEY GROVES, M.S., M.D., B.Sc. (Lond.), F.R.C.S. (Eng.), Surgeon to the Bristol General Hospital; Consulting Surgeon to the Cossham Hospital; Surgical Director of the Ministry of Pensions Hospital, Bath. Second Edition, with 296 illustrations, some of which are fully col-ored. New York: William Wood & Co., 1922.

This beautifully illustrated book of 424 pages by the well known editor of the *British Journal of Surgery* contains much suggestive text. The headings of its thirteen chapters give an excel-lent idea of its scope. They are as follows:

1. The Teaching of Modern Problems.
2. Massage and Mobilization.
3. Treatment by Extension.
4. Experimental Observations on Operative Treatment.
5. Methods of Open Operation.
6. Experimental Observation on Bone-Graft-ing.
7. Bone-Grafting Operations for Fractures.
8. Fractures of the Upper Limb.
9. Fractures of the Lower Limb—Non-Oper-ative Treatment.
10. Fractures of the Lower Limb—Operative Treatment.
11. Mal-United Fractures.
12. Open or Compound Fractures.
13. Ununited Fractures.

The work is not designed to be a textbook for either students or a complete reference book for general surgeons. It is important as repre-senting the conclusions of a thoughtful surgeon whose extensive experimental work has been checked by a very wide war and civil expe-rience with clinical problems. The author's experimental work has led him to the conviction that if anatomical reposition of fractures is the

goal to be sought, open operations must be more frequently performed. He also believes that internal metal splinting and bone-grafting must be very complete and often extensive. Most surgeons would hardly agree that the trend of modern treatment suggests elaborate metal internal splinting as necessary or even advisable, except in occasional instances, in order to obtain entirely satisfactory functional end-results.

He pleads for absolute aseptic technique in clean operation on bone, but considers Sir Ar-buthnot Lane's non-touch standards too metieu-lous and believes them often actually prejudi-cial to quick and accurate work.

The summaries of his very full discussions of the mobilization treatment of fractures, ex-perimental work, metallic fixation, bone-graft-ing, and operative methods are excellent. A wide knowledge of the significant work of other men and of the old and modern literature adds to the value of the book.

Lehrbuch der Grenzgebiete der Medizin und Zahnheilkunde (Textbook of the Borderland of Medicine and Dentistry). By DR. JULIUS MISCH, Dentist in Berlin. Leipzig: F. C. W. Vogel, 1922.

This work is in two volumes of nearly 700 pages each. The branches of medicine which have a bearing on diseases of the teeth and jaws are taken up in such a way as to present to the dentist in a single book all the medical infor-mation which he will need and which he must otherwise obtain from many sources. To the physician the book offers in accessible form the knowledge of dentistry which is likely to be valuable to him through its bearing on diseases with which he may be called upon to deal. The book is divided into sections, each contributed by an eminent physician and supplemented by the author. The margins of the supplements are set in so that they are distinguishable at a glance from the contribution of the physi-cian.

The subjects of the ten sections of the book are diseases of the internal organs, of children, of the nervous system, of women, of the nose, throat and larynx, of the ear, of the eye, syphi-lis, and occupational diseases.

Though the matter is concisely presented, the size of the book is rather formidable, owing partly to the fact that a wide range of diseases is included, and partly to the use of large print and thick paper. There are many excellent illustrations, a considerable number of which are in color.

The author claims that his work is the first of its kind, and we have seen nothing like it in any language. It would seem that the book may prove extremely useful to dentists and very helpful to physicians for purposes of ref-erence.

Opiate Addiction: Its Handling and Treatment.

By EDWARD HUNTINGTON WILLIAMS, M.D.
New York: The Macmillan Co., 1922.

Dr. Williams has in a lucid manner outlined the nature of opiate addiction and its treatment. The book is not a monograph with references, but a pleasing and informative exposition of the subject. In the fifteen-page introduction there is an excellent discussion of the legal control of the narcotic problem. A little more than half of the contents is given to the subjects of gradual reduction treatment and rapid withdrawal methods. The last chapter entitled, "Comments and Observations," illustrates bits of the addict's life and the light in which one should view these sufferers. This small volume is of distinct value to anyone wishing to be acquainted with the subject; a subject upon which many physicians are not well informed.

The Mechanics of the Digestive Tract.

By WALTER C. ALVAREZ, M.D. New York: Paul B. Hoeber, 1922.

This book presents in a small volume the conclusions and some tentative deductions from a large amount of laboratory research which has been the basis of a large number of articles in the periodical literature. It is an important work, and one whose ultimate value can be decided only by further study and discussion by physiologists, and not by any present review. The general teaching, so far as it is followed by one out of touch with special laboratory physiology, is to the effect that the musculature of the digestive tract is autonomous, or controlled by its inherent properties, rather than subject to nerve control, as has been previously taught. Moreover, the muscle of different parts of the digestive tract differs in action, according to its location, and the differences in action throughout the digestive tract change progressively in the course of the tract, according to a "gradient," or progressive variation, by which all parts of the tract are normally coördinated so as to produce the normal effect upon the course of their contents.

The experimental evidence is based chiefly upon studies of small excised segments which carry the conviction that their accuracy is beyond question. The discussion delves deeply into the literature of physiology, both human and comparative, for additional evidence, and a large bibliography is appended. Of chief interest to physicians is the chapter on Practical Applications of the Theory to Clinical Disorders. Here the author discusses disturbances of gastric and intestinal function which may plausibly be explained as the results of abnormal "gradients," or reversed peristalsis. His argument as a whole is highly suggestive. In so far as it deals with the intestinal tract it impresses one with a probability of its truth.

Extension of the theory to cover the disorders of the stomach, however, involves a greater revision of the clinician's previous memories and beliefs as to physiology.

So much is attributed to disturbance of motor function that the reader can not avoid questioning whether the author has not focussed his attention too closely on peristalsis to the exclusion of other factors which perhaps we can not, after all, afford to disregard. It may be that this work will institute an important modification of our conception of the clinical disorders of the stomach, but before its general acceptance by clinicians more evidence more simply stated will be necessary.

Pharmacology and Therapeutics. Edited by BERNARD FANTUS, M.S., M.D. *Preventive Medicine.* Edited by WM. A. EVANS, M.S., M.D., etc., with the collaboration of G. KOEHLER, M.D. The Practical Medicine Series, Vol. vi. Chicago: The Year Book Publishers, 1921.

While this volume of the series includes two separate subjects, both divisions serve a similar purpose in their respective fields, namely, to enable a reader to read quickly in brief summary, a large number of publications of possible importance that would otherwise have escaped his attention. The first section, devoted to Pharmacology and Therapeutics, is of the greater interest to most physicians. Here the editor's task in selecting from a very large number of published reports only those which present a reasonable prospect of proving of value has been a difficult one, but he seems to have accomplished it with good judgment. The result is a large number of suggestions and cautions, and discussions, bearing upon medical treatment, which deserve consideration. Undoubtedly, a certain proportion of the measures suggested will not stand the test of time, and certain views will be modified in the future. Few, if any, epoch-making advances appear. Still, most readers, who are practising physicians, will find certain measures described which are worthy of a trial, and certain considerations which may lead them to modify their previous methods. In the section on Preventive Medicine, the need for critical selection seems to have been less urgent, but much is included that is of interest both to the physician and to the health officer.

The Treatment of Common Female Ailments.

By FREDERICK JOHN McCANN, M.D. (Edin.), M.R.C.P. (Lond.), F.R.C.S. (Eng.), Surgeon to In-Patients Samaritan Free Hospital for Women, London; Consulting Gynaecologist, West End Hospital for Diseases of the Nervous System; Late President West London Medico-Chirurgical Society, etc. London: Edwin Arnold & Co., 1922.

This book is written to serve as a guide to the practitioner in the treatment of those common ailments encountered in the course of an ordinary general practice.

Infection, Abortion and Puerperal Infection have been separately considered because of their preponderating influence in the causation of these ailments, whilst chapters are added on the diagnosis of pregnancy and the diagnosis of cancer in the womb.

The book contains chapters on the following subjects: Pain in the Lower Abdominal and Pelvic Regions; Menstrual Disorders; Uterine Haemorrhage (Metrorrhagia), and Vaginal Haemorrhage; Infection as a Cause of Female Ailments; Uterine and Vaginal Discharge; Frequent and Painful Micturition; Sexual Ailments; Pruritus and Allied Conditions Affecting the Vulva; Backward Displacements of the Uterus; Prolapse—Uterine and Vaginal; Abortion; Puerperal Infection; Inflammation of the Fallopian Tubes (Salpingitis); How to Diagnose Pregnancy; How to Diagnose Cancer in the Womb.

This little volume of 152 pages gives the reader a fairly adequate but very brief idea of the various conditions described. The author's paragraphs are in most cases much too short; they would be valuable to an experienced practitioner but not so valuable to a man seeking detailed information. They are oftentimes more suggestive than descriptive. A considerable amount of space is devoted to medical treatment, and prescriptions are written out in detail. There are no illustrations. There is an index of eight pages. This book would not be suitable for a medical student as it does not go enough into detail or pathology.

Current Literature Department.

ABSTRACTORS.

GERARDO M. BALBONI	CHARLES H. LAWRENCE
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JOHN S. HODGSON	BRYANT D. WETHERELL
FRED S. HOPKINS	

THE DIAGNOSIS OF SYPHILIS.

HAZEN (*Am. Jour. of Syph.*, Vol. v, No. 3, July, 1921) gives the advice "Be quick to suspect syphilis, be slow to diagnose syphilis." The article cannot be reviewed and should be read by everyone; so concisely stated are the 25 methods of examination that the article would have to be presented *in toto* to be of value. These 25 methods extend from the examination of the primary, through ophthalmic and neurological and serological examinations, to the autopsy. All are urged to read the original article.

[A. W. C.]

LUETIN.

WARD (*Am. Jour. of Syph.*, Vol. v, No. 3, July, 1921) presents in the form of charts and graphs the results of luetin tests in a considerable group of syphilitics of all stages and in potential syphilitics. Luetin was made according to Noguchi's original formula, except that six strains were used instead of two, and that the cultures were older than Noguchi's. In a large number of these cases simultaneous Wassermann tests were made, using both the alcoholized human heart and cholesterolized antigens.

The results lead to the conclusion that as an indicator of the value of antisyphilitic treatment it verifies the Wassermann in a high percentage of cases, but remained positive in 10 per cent. to 15 per cent.; and that each alone, the luetin and Wassermann tests, expresses but a limited truth; together a more rational conception is possible, especially in estimating the establishment of a cure; that luetin is in need of standardization and probably can easily be improved.

[A. W. C.]

A VALUABLE METHOD OF TREATMENT IN SELECTED CASES OF SYPHILIS.

GUY (*Am. Jour. of Syph.*, Vol. v, No. 3, July, 1921) emphasizes very strongly the need of individualization in treating syphilis and of long continued treatment in syphilis, and of intensive treatment in cases that are physically fit.

He outlines the type of treatment he has used in a number of cases in all stages who are physically fit, aggregating about 500 intravenous injections—a modification of the method advocated by Pollitzer. He gives 0.1 gm. of arsphenamin for each 30 pounds of body weight on each of three successive days. This is repeated after one month, and again one month later. In selected primary cases he has occasionally given the second three injections after an interval of two weeks. Mercury is given by intramuscular injections up to the limit of tolerance during the whole period and for a month after the last group of arsphenamin injections. Then a rest of eight weeks is given and the whole repeated, except in dark-field-positive, Wassermann-negative cases.

[A. W. C.]

THE TOXIC ACTION OF ARSPHENAMIN AND NEOARSPHENAMIN.

PATCH (*Can. Med. Assn. Jour.*, Vol. xi, No. 8, Aug., 1921) discusses the standards established by the United States and the British governments for toxicity tests of the arsphenamin group and reviews recent literature on tests, preparation of the drugs, and the essentials of safe technique in administration. It is probably true that there is no one cause of reactions, but that causal factors are to be found somewhere in the relation between patient, drug, and technique. He emphasizes the fact that the solution of the drug for administration involves accurate and important chemical reactions and that all reagents should be chemically pure and all apparatus scrupulously clean and all quantities exact. Glassware should be dry sterilized. Only freshly distilled water should be used. For arsphenamin injections, isotonic saline should be used, 20 c.c. to 0.1 gm. of the drug. Chemically pure sodium hydrate should be used, adding slowly until it clears, then one-fifth in excess, all without vigorous shaking. The solution should be administered as soon as possible and given slowly. For neoarsphenamin, if concentrated solutions are used (0.2 gm. in

3 c.c.), distilled water should be used. If dilute solutions are used, normal saline solution should be the medium.

[A. W. C.]

PREVENTION OF MENTAL BREAKDOWN.

BARAGAR (*Can. Med. Assn. Jour.*, Vol. XI, No. 8, Aug., 1921) sums up his ideas of possible control of the problem as follows:

1. Medical and social. By the adequate prevention and treatment of alcoholism and syphilis.

2. Heredity. By steps to prevent the bringing into the world of individuals likely to have a mental breakdown. This may be obtained to some extent by contraceptive measures, and possibly, in certain cases, by sterilization, but chiefly by building up high social ideals and a strong and enlightened public opinion, and by emphasizing the true object of matrimony.

3. Developmental. Insure for each child a healthy body. Develop in each individual healthy habits of thought and objective interests, taking care that more youthful or inefficient modes of adjustment do not become fixed. Balance properly the child's physical and mental activities. Face frankly and take steps to counteract abnormal tendencies in the child. Open out the child with a sensitive and "shut-in" personality. Teach the psychopathic or neurotic child to control himself. Guide the boy and the girl through the troublesome period of puberty. Sex knowledge should be imparted to the child in the home by the parents as it is spontaneously demanded.

4. Immigration. Wise and well-enforced immigration laws are required.

[A. W. C.]

UNSUSPECTED SYPHILIS OF THE NERVOUS SYSTEM: ITS LABORATORY DIAGNOSIS.

MAITLAND (*Can. Med. Assn. Jour.*, Vol. XI, Nos. 9, 10 and 11, Sept., Oct. and Nov., 1921) summarizes his article as follows:

A large percentage of unselected cases of syphilis have central nervous system involvement as evidenced by pleocytosis and a positive Wassermann reaction in the cerebrospinal fluid. The onset may be very early. In a few cases they were demonstrable before the blood Wassermann became positive.

The lesion is undoubtedly a syphilitic meningitis. This conclusion is based not only on the lymphocytes in the spinal fluid but also on the frequent appearance therein of polymorphonuclear leucocytes when the count is high. In a large proportion of the affected cases the fluid showed a positive Wassermann reaction, and in one case (with 1000 cells per c.mm.) *S. pallidum* was demonstrated in the fluid by the dark-ground illumination. The C. N. S. involvement was found in all stages of the disease. A striking feature of the investigation was the large percentage of so-called "latent" cases with spinal fluid alterations.

Another outstanding feature was the very frequent absence of symptoms or signs of disturbed nervous function. A considerable proportion, however, had lesions of the eye grounds, slight in extent, but nevertheless indicative of a beginning retinitis.

Affections of the internal ears were found not to be a reliable indication of C. N. S. involvement in the cases of this series.

The intravenous administration of novarsenobillon restored many cases to normal and in others effected a marked improvement in symptoms and findings. On the other hand, a few cases showed a definite resistance to treatment, and in some the

meningitis actually progressed in spite of repeatedly renewed treatment.

The finding of cerebrospinal fluid with increased cell count should have a profound bearing on the prognosis and treatment of a case of syphilis. As soon as the organisms have invaded the C. N. S. the difficulty of bringing about a cure is increased. Failure to cure was four times as common in cases with over ten cells per c.mm. as it was in those whose fluid was normal. One reason that may account for this failure is the relative inability of salvarsan and other similar compounds to penetrate into the brain parenchyma.

In view, therefore, of the important bearing that an involvement of the C. N. S. has in the prognosis and treatment of syphilis, it is probable that lumbar puncture should never be omitted as a routine in the first examination of all cases of syphilis.

[A. W. C.]

SPINAL DEFORMITY AS A CAUSE OF CARDIAC HYPERTROPHY AND DILATATION.

FINLEY (*Can. Med. Assn. Jour.*, Vol. XI, No. 10, Oct., 1921) describes four cases, two of them with autopsy, of severe kyphosis and scoliosis with serious embarrassment of heart action. The lung capacity in the two autopsied cases was greatly diminished also. The cases showed a "normal dyspnoea" with cyanosis and varying degrees of fluid in the serous cavities. The cases are reported to emphasize the fact that such cases exist, and not as infrequently as might be thought.

[A. W. C.]

THE CAUSE OF THE "AMMONICAL DIAPER."

HART (*Can. Med. Assn. Jour.*, Vol. XI, No. 10, Oct., 1921) takes up in detail his methods of studying the problem and gives in chart form the results of careful study of several cases. He is very sure that the ammoniacal diaper is due to external causes, of which the most frequent is the leaving of alkali after washing. The second cause is the contamination of the urine by organisms either from an infection of the genito-urinary tract or from some contamination from the outside. The free ammonia comes largely from the breaking down of the ammonium salts in the urine, so that a liberal diet is a factor; starvation, by reducing the ammonium salts excreted, temporarily cures the condition. A nearly neutral urine will more easily than a highly acid one become alkaline and liberate ammonia. The administration of large amounts of alkali will decrease the excretion of ammonium salts. A highly concentrated urine, containing relatively more ammonium salts, will give off more ammonia than a dilute one. From a clinical standpoint all that one need consider is boiling of the diapers to get rid of the contamination by bacteria and thorough rinsing to get rid of the alkali left in washing.

[A. W. C.]

BLOOD TRANSFUSION IN SEVERE BURNS IN INFANTS AND YOUNG CHILDREN.

ROBERTSON (*Can. Med. Assn. Jour.*, Vol. XI, No. 10, Oct., 1921) describes the results in seven cases of severe burns in young children, using the following technic, worked up to try to prevent the secondary or toxic shock: Blood is withdrawn from whatever vein is selected, most conveniently the longitudinal sinus, or external jugular, or saphenous, until the child shows signs of serious blood loss; then transfusion is started by another vein, the outflow being still allowed with care for some little

time yet. If the margin of safety is too closely approached and the pulse becomes imperceptible, adrenalin will bring back the tone of the circulation until enough blood flows in to take care of everything. Figures showing the severity of the burns and temperature charts accompany the case histories.

[A. W. C.]

OBSERVATIONS ON THE ETIOLOGY OF INFANTILE ECZEMA.

WRIGHT (*Can. Med. Assn. Jour.*, Vol. XII, No. 1, Jan., 1922) found that eczema in breast-fed babies usually occurs in the well-nourished. Skin tests in several cases showed a sensitization to articles of food, such as white or yolk of egg, which had never been fed to the infant, but which the mother was eating in considerable quantity; when these articles were removed from the mother's diet the eczema usually improved greatly or disappeared entirely.

In artificially fed babies there is frequently an offending protein directly taken by the baby, and in such cases it can be tested for and removed from the diet. Some of these babies, however, show no positive skin tests to any of the foods; many of them improve on fat-free diet, with later gradual replacement of the cream. The author advises local care of the skin, of course, as well as regulation of diet.

[A. W. C.]

SOME NEW ANAESTHETIC ETHERS.

WEBSTER (*Can. Med. Assn. Jour.*, Vol. XII, No. 1, Jan., 1922) says that ethyl ether as prepared for anaesthetic purposes contains small quantities of impurities, especially alcohol, water, acetone, mercaptans, thio-ethers, and, after oxidation on standing, aldehydes, peroxides, and acids. Cotton of Toronto worked out the "Cotton Process Ether," consisting of highly refined diethyl oxide plus two volumes of ethylene, one-half volume of carbon dioxide, and one per cent. by weight of ethyl alcohol; he did this after finding that chemically pure ether has no anaesthetic properties. The author used it by the open and closed methods and with nitrous oxide and oxygen, and found little or no advantages over the usual preparations of ether. Another, ethanesal, was worked out by Wallis and Hewer of London; this contains two per cent. of the ketones added to pure ether. The following advantages are claimed for it over ordinary ether:

1. It is less toxic than chloroform or ether, and the margin of safety is greater than with ether.
2. Less irritating to the respiratory passages than ether.
3. Post-anaesthetic vomiting is less than with chloroform or ether.
4. The taste and smell noticed afterwards by the patient are much less than with ether, and are generally absent.
5. The pulse pressure is higher than with ether or chloroform.

The author does not find these claims untrue, and finds that the stages are rather shorter, relaxation is greater, breathing more quiet, and only two-thirds as much is required. The patient may be carried much lighter throughout than with ordinary ether.

[A. W. C.]

THE ETIOLOGY OF RICKETS.

TISDALL (*Can. Med. Assn. Jour.*, Vol. XI, No. 12, Dec., 1921) takes up in detail the various theories of the causation of rickets and gives seven photomicrographs illustrating rachitic changes. He

summarizes his article as follows: Pathological conditions have been produced in the bones of rats, which bear a fundamental resemblance to the bone lesions present in human rickets. These changes have been produced by feeding (1) diets containing an insufficient amount of phosphorus and an unidentified organic factor, the other organic and inorganic constituents being at an optimal concentration; (2) diets containing an insufficient amount of calcium and the unidentified organic factor, the other organic and inorganic constituents being at an optimal concentration.

Congenital or foetal rickets, if it occurs at all, is an extremely rare condition. No proof has been given that rickets is due to a derangement of the function of the glands of internal secretion and no evidence has been advanced that infection, confinement, or defective hygienic conditions are more than contributory factors in the production of this disease. A deficiency of phosphorus alone, calcium alone, or the anti-rachitic factor (fat soluble A?) alone, in the diets given to rats, will not produce rickets.

The geographical distribution of rickets may be explained on the basis of the effect of the diet, and possibly of sunlight, on the prevention of the disorder. In the tropics the children are not only exposed to sunlight, but their diets generally have a large percentage of leafy vegetables which contain a considerable quantity of both the anti-rachitic organic factor and the inorganic salts. The anti-rachitic organic factor is contained in large quantities in cod liver oil, and so far as it is known rachitic lesions cannot be produced by any means provided this oil is supplied in the diet. The use of fish as a staple article of food by the inhabitants of the far North gives an adequate explanation for the infrequent occurrence of rickets in that region.

The possible effect of sunlight on the prevention and healing of rickets and the favorable results obtained by means of ultraviolet rays are extremely interesting when considered with the known effect of the anti-rachitic organic factor. When cod liver oil is given to rachitic children it causes a marked deposition of calcium salts in the bones. Ultraviolet rays appear to have an identical effect. The question arises whether the ultraviolet rays produce or cause to be liberated a substance similar to that in cod liver oil, which stimulates the deposition of calcium salts in the bones, or, on the other hand, whether the beneficial effect is due to the emanation of certain rays produced by the oxidation in the body of the unidentified substance in cod liver oil, which rays might be similar to those present in the light from the mercury vapor quartz lamp, or sunlight. It is known that the permeability of plant cells for certain inorganic salts is increased by exposure to light. It is also known that fatty oils emit light on oxidation. Further experimental work is necessary for the settlement of this most interesting question.

The recent work of McCollum, Simmonds, Shipley, and Park, although it constitutes a distinct advance in our knowledge of the production of experimental rickets in animals, does not solve the problem of human rickets. Many children develop this disease when they receive a diet of cows' milk which contains a large amount of phosphorus and calcium. In fact, rickets may be seen in infants receiving almost any diet. Nevertheless, it is a striking fact that the diets of most of the children who develop rickets are ill-balanced and low in the anti-rachitic organic factor. In all probability it will be shown that rickets in the human is due to dietary defects, with a possible combination in certain cases of an insufficient amount of sunlight.

[A. W. C.]

NON-TUBERCULAR KIDNEY INFECTIONS.

SULLIVAN (*Ann. of Surg.*, April, 1922) writes as follows:

That the kidney is the eliminating organ for circulating microbes, and in the course of this elimination may itself be damaged in a variety of ways.

Haematogenous infection may be restricted not only to a single kidney, but even to a circumscribed portion of the organ.

The source of the infection may not only be a general disease, but a distant and apparently insignificant focus may be responsible.

Metastatic haematogenous infection of the kidney perinephritic or paranephritic abscess is not always recognized, and may be confused with intra-abdominal infections.

A sudden attack of pain in kidney region, associated with fever, in a patient known to have a suppurative process elsewhere in the body, should excite suspicion of metastatic kidney infection.

Cystoscopy and pyelography are valuable aids, especially when urinary changes are incomplete, or the symptoms are referred to the healthy side.

The treatment of perinephritic and paranephritic abscess is early drainage. Where the suppuration involves the kidney parenchyma, or where the process is an acute fulminating one, nephrectomy is indicated.

[E. H. R.]

STUDIES OF THE FUNCTION OF THE GALL-BLADDER.

HARER *et Al.* (*Surg., Gyn. and Obst.*, March, 1922) state that the function of the gall-bladder is that of a concentrator of bile, which concentration is effected chiefly by the lymphatics. That the gall-bladder is emptied of its contents—if it is emptied at all through the cystic duct—by pressure of adjacent, distended and congested organs during digestion, and by the milking action of the duodenal peristaltic waves, and that the rhythmic contractions of the gall-bladder are of no importance in this respect. That by means of the lymphatics infections are carried from the gall-bladder to the glands at the head of the pancreas, producing a lymphangitis and lymphadenitis and a lymph stasis which later becomes organized and results in chronic pancreatitis.

[E. H. R.]

SURGICAL ANATOMY OF THE TRIGEMINAL NERVE.

KANAVEL AND DAVIS (*Surg., Gyn. and Obst.*, March, 1922) emphasize the following points:

1. The distance from a point upon the inner surface of the squamous portion of the temporal bone opposite the pregenoid tubercle to the foramen spinosum was found to average 2.47 centimeters.

2. There are six distinct types of middle meningeal arteries, the larger percentage of which give off single anterior and posterior branches.

3. The distances from the foramen spinosum to the gasserian ganglion, foramen ovale, and foramen rotundum, respectively, are 1.66 centimeters at an angle of 20 degrees occipital from a transverse diameter through the foramen spinosum; 0.7 centimeter at an angle of 30 degrees frontal from the transverse diameter; and 2.27 centimeters at an angle of 36 degrees frontal from the transverse diameter.

4. In 41 per cent. of cases a marked bony prominence overhangs the foramen spinosum, which leads to difficulty in elevating the dura mater and ligating the middle meningeal artery. Further, in 38 per

cent. marked lateral grooves are present which may lead to difficulty in localization of the operative field.

5. An attempt should be made to save the motor root, which lies medial to and somewhat superior to the sensory root centralward from the ganglion.

6. A thin membrane lies between the gasserian ganglion and the carotid artery in 40 per cent. of the skulls examined.

7. The cause of the paralysis of the seventh nerve which infrequently occurs cannot as yet be definitely stated.

[E. H. R.]

THE REGISTRY OF CASES OF BONE SARCOMA.

CODMAN (*Surg., Gyn. and Obst.*, March, 1922) describes in detail his plan for registry of bone sarcoma, with which practically every physician in the country is already familiar from the literature sent out by Drs. Codman and Bloodgood. He describes the plan of work, future plans, the proper nomenclature to use, gives a brief analysis of the work up to Jan. 1, 1922, and describes also how to register a case of bone sarcoma.

The importance of this work is emphasized by the statement that there are today only four known cases of true bone sarcoma in this country which are alive after being treated over five years. These were all treated by amputation alone. The seriousness of the disease and the necessity for more intelligent treatment are therefore evident.

[E. H. R.]

SARCOMA OF THE LONG BONES.

A STUDY OF MICROSCOPICALLY PROVED CASES.

MEYERDING (*Surg., Gyn. and Obst.*, March, 1922) reports the results on 109 cases subjected to careful examination. He presents outline charts graphically showing the relative frequency of the various forms of sarcoma in various regions of the long bones of the body. This is a very valuable chart. X-ray plates accompanying the article also beautifully illustrate the text.

In regard to treatment, he states that, when a tumor of the bone is suspected of being malignant, roentgenograms of the chest are made routinely. The cough, with evidences of increased intrathoracic pressure, appears too late to be of diagnostic value. Metastasis to the glands or to other structures of the body should be ruled out if possible. The extent of local growth is then determined. After all possible means have been taken to rule out metastasis and syphilis, the type of treatment must be considered. The rapidity of growth and the duration of symptoms are important. The tumor should be explored before the limb is amputated. Many radical operations have been performed and limbs needlessly sacrificed because of failure to explore. With a tourniquet applied, exploration may be safely accomplished and the macroscopic and microscopic appearance noted.

The most malignant sarcomata in the series of 32 patients was the osteosarcomata.

A diagnosis should be made only after thorough clinical, physical, and roentgenographic examinations have been made, and even then cannot always be determined until an exploratory operation and microscopic examination rules out giant-cell tumor, chondroma, fibrocystic or cystic disease, syphilis, and osteomyelitis. The principal points to be decided before operating are malignancy, metastasis, and the extent of bone involved. With early diagnosis, with eradication of the tumor, with care to exclude patients with metastasis, and with the use of radium, roentgen-ray, and Coley's toxin, prolongation of life may be looked for following operation.

[E. H. R.]

THE CLINICAL ASPECTS OF ABDOMINAL TUBERCULOSIS.

MORLEY, J. (*British Medical Journal*, March 11, 1922), discusses the various types of abdominal tuberculosis and sums up the general indications for operation in these conditions as follows:

"Pain, when it occurs in recurrent, well-defined, colicky attacks, especially if they return with regular periodicity and sharp intensity, signifies a mechanical interference with intestinal peristalsis, and this can only be relieved by operative measures.

"Glandular masses in the mesentery, if not too extensive, and if they do not yield rapidly to constitutional treatment, should be excised, and this is particularly urgent when they are associated with colicky attacks of pain.

"Palpable masses in the ileo-caecal region, associated with signs of chronic intestinal obstruction, are an emphatic indication for laparotomy and resection of the tuberculous ileo-caecal region, should such be found.

"The ascitic form of tuberculous peritonitis is essentially a disease for surgical treatment. The operation is free from danger, and its beneficial results are usually dramatic. I need hardly labour the point that the utmost care in the medical or constitutional treatment is of great importance in the cure, but I wish to emphasize the view that operation is almost equally essential.

"Finally, in the plastic type of tuberculous peritonitis, if the trouble does not yield to the ordinary medical measures, operation may be undertaken with a fair degree of safety, provided that no extensive attempt is made to separate adhesions; and there is some ground for hoping that even these apparently desperate cases may make a complete recovery." [J. B. H.]

A STUDY OF THE RELATION OF THE ADRENAL GLANDS TO EXPERIMENTALLY PRODUCED HYPOTENSION (SHOCK); WITH A NOTE ON THE PROTECTIVE EFFECT OF PRELIMINARY ANESTHESIA.

RICH (*Johns Hopkins Hosp. Bull.*, March, 1922) in the following paragraphs summarizes his investigations concerning the relation of the adrenal glands and shock:

I. Adrenalectomized animals, subjected to uniform intestinal manipulation before the blood pressure has begun to decline as a result of adrenalectomy, fall into shock exactly as do normal controls—the time required for the production of shock and the character of the blood pressure curves being the same in both series. It is therefore concluded that disordered adrenal function is not a factor in the production of shock.

II. Hypotension invariably results from removal of the adrenal glands, and with the development of hypotension the circulation of adrenalectomized animals appears to become more unstable than that of normal animals even before the appearance of asthenia. The blood pressure begins to fall several hours after adrenalectomy and becomes progressively lower until death. The fall in blood pressure is shown to be independent of the operative trauma and begins before asthenia has appeared. This is offered in support of the idea that the adrenals are concerned in the maintenance of the blood pressure at the normal level, and certain objections to this belief are briefly discussed.

III. Animals that are kept lightly anesthetized with ether, for an hour immediately before the abdomen is opened, become very resistant to the shock-producing effect of intestinal manipulation. Even when subjected to severe peritoneal trauma for a period of three hours, the blood pressure shows practically no tendency to fall and sensibility is

retained. In contrast, if identical intestinal manipulation is begun more promptly after anesthetization, the blood pressure invariably begins to decline progressively within an hour, has fallen to 60 mm. or below an hour and a half to two hours after opening the abdomen and the animal is in complete shock. An hour's ether anesthesia preliminary to opening the abdomen has proved to be a striking protective against shock, under the conditions of these experiments. If an animal is kept anesthetized for an hour, permitted to recover from the anesthetic, and at once reanesthetized and intestinal manipulation begun, the protective effect of the hour's anesthesia will have disappeared.

IV. Ether has a distinct tendency to hasten the onset of shock once the blood pressure has begun to decline after the abdomen is opened.

V. Cardiac failure is not a factor in the production of shock.

VI. Failure of the vasomotor center is not a primary factor in shock.

VII. The cardio-inhibitory center is shown not only to respond to stimuli but also to function independently during deep shock. Its failure cannot be regarded as a cause of the condition.

[J. B. H.]

A CLINICAL AND ANATOMICAL STUDY OF FIFTY-ONE CASES OF REPEATED CAESAREAN SECTION, WITH ESPECIAL REFERENCE TO THE HEALING OF THE CICATRIX AND TO THE OCCURRENCE OF RUPTURE THROUGH IT.

GAMBLE (*Johns Hopkins Hosp. Bull.*, March, 1922) presents a thorough and careful summary of repeated Caesarean sections, particularly in relation to its pathology, concluding as follows:

1. The weak Caesarean scar may be due to a single factor or to a combination of factors, the most important of which is infection.

2. An afebrile puerperium does not give an absolute assurance of perfect wound healing.

3. The perfection of technique in suturing the uterine incision will undoubtedly lessen the incidence of weak scars.

4. Chronic catgut, in our hands, has proved to be a satisfactory suture material.

5. The uterine wound should not be closed, if possible, until firm contraction of the musculature has occurred.

6. As a rule foetal elements do not invade the uterine scar.

7. Adhesions following Caesarean section are common. They are not necessarily the result of coexisting infection, and may give rise to serious complications at subsequent operations.

8. The dictum "once a Caesarean, always a Caesarean" cannot be accepted without considerable reservation.

9. A patient who has once been subjected to a Caesarean section should enter the hospital several weeks prior to the expected date of confinement, so that she may have the benefit of immediate operation should rupture occur.

His list of references is a long and complete one.

[J. B. H.]

THE CAUSES OF FREQUENCY OF MICTURITION, WITH REFERENCE TO DIAGNOSIS AND TREATMENT.

IRWIN (*The Practitioner*, March, 1922) discusses 28 causes of frequency of urination and briefly the treatment of these various conditions.

This article is more in the nature of a summary of this subject than anything else.

[J. B. H.]

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MEDICAL EDUCATION AND MEDICAL PROGRESS.

CRITICISM of the medical profession by those not of it is always stimulating. It is particularly so when it is constructive in its nature, and when it is based upon a knowledge of the facts and inspired by a sympathy with medical achievement. Of such a character is that section of the Sixteenth Annual Report of the Carnegie Foundation for the Advancement of Teaching dealing with "The Relation of Medical Education to Medical Progress," written by Henry Smith Pritchett, the president of the Foundation. Dr. Pritchett, being an educator, is naturally chiefly concerned with the educational aspect of medical progress, and this report consists of an evaluation of the several agencies of medical education, with comments upon their present weaknesses and suggestions for future improvements.

The undergraduate school of medicine is dealt with from the point of view of the quality of the teaching and the arrangement of the curriculum, and as regards its relation to the community. Dr. Pritchett says that "perhaps no defect in the medical school makes a sharper impression upon the lay visitor, familiar with the quality of teaching in our more serious colleges, than the lack of good teaching, and particularly in the teaching of professional

subjects." He does not belittle the value to the medical school and the students' imagination of the great clinician or surgeon, but he expresses the wish that the latter could "bring themselves to consider the art of teaching as also within their sphere of educational activity."

"The medical curriculum of today represents the conception of teaching of half a century ago modified by certain laboratory practice superimposed upon it." It is altogether wrong, Dr. Pritchett believes, to teach anatomy, physiology, pathology and chemistry as separate sciences, quite apart from their clinical applications. "The practical remedy for this situation is to reduce the amount of theoretical instruction in the first two years, and to change the character of the teaching so as to make clear the fundamental facts, while at the same time starting the clinical instruction with the very beginning of the course. The student should learn his anatomy and his pathology through his clinical training—not reverse the process. No other reform in medical teaching approaches in importance this one."

It is doubtful whether there would be general agreement as to the practicability of this suggestion. Certainly the application of the fundamental sciences to clinical medicine and surgery should be constantly emphasized; the students' interest in them will be enhanced by an early realization of their practical importance. On the other hand, these sciences are the foundation upon which all knowledge of medicine is erected; until the foundation is firmly established no lasting superstructure can be reared.

The situation as regards the number of medical schools is well summarized by Dr. Pritchett. Due chiefly to the campaign for better medical education carried on by the American Medical Association, and to the report of Mr. Abram Flexner, the number of medical schools in the United States was reduced from 160 to 85. Dr. Pritchett questions whether this reduction was not too drastic; in some instances where a school existed alone in a more or less isolated district, it might have been better to have strengthened the school rather than to have destroyed it. Dr. Pritchett would have about 100 medical schools in this country.

While Dr. Pritchett urges the encouragement of graduate teaching, he makes no special suggestions along this line. His comment upon the situation as regards the "country doctor" appears to be extremely sound, but upon analysis the observer, disillusioned by personal experiences in such communities, may doubt the practicability of these suggestions. He starts with the assumption that the people of rural communities should not be expected

to put up with a lower grade of doctor than one finds in larger cities. He believes that the reason why country practice has ceased to appeal to younger medical men is because of the lack of scientific facilities for doing good work, *i.e.*, laboratories and hospitals. Let each community with a radius of perhaps ten or fifteen miles establish a hospital and laboratory through the coöperative efforts of doctors and citizens. Except in a few sparsely settled districts this will be easily possible, he says, and will give every citizen the chance to receive adequate modern medical treatment and will induce the younger men to settle in smaller communities without fear of loss of scientific attainments or prestige.

The function of hospitals is to serve the sick, to educate the public and the profession, and to aid research. On the subject of medical research Dr. Pritchett speaks with much discrimination. Although he does not condemn "research" in definite words, one gets the impression that he does not favor it as an end in itself. He divides those engaged in this work into four classes, the first three graded according to their originality and productivity of real knowledge; the fourth consisting of those who "join the army of research because they are not strongly drawn in any other direction and research is today a word to conjure with." . . . "It is probably fair to say that the bulk of the money spent in the name of research in American colleges and universities is absorbed by the fourth group of 'researchers.'" . . . "The outcome of all these subsidies is problematic." . . . "To justify a subsidy for research in the case of a man whose primary duty is to teach, at least two things should be made clear: First, that the proposed 'research' concerns something that is worth while in the opinion of men qualified to judge; secondly, that he who undertakes the research is master of the knowledge and of the technic necessary if his study is to have any promise of fruitage."

The cost of all this education and research has risen enormously and has reached a point where further increase will be difficult. Dr. Pritchett says that the cost of medical teaching and of medical service must be borne equitably by the great body of citizens who profit by them. They cannot be supported by private philanthropy, nor will they be supported by taxation unless they are available for all. "Sooner or later, medical school, hospital, research laboratory and diagnostic clinic must be part of one organization, and the support of the whole system must come in the main from the payments of those who are taught, diagnosed, treated, or nursed by it." These ends will be served by organization of the medical profession, notably by the develop-

ment of coöperative clinics in connection with hospitals and medical schools.

Within this report of 20 pages, every sentence of which reveals a sincerity and a wide acquaintance with medical problems, there is much to consider. Most medical men lead lives of intensive individualization; they spend their days concentrating upon single symptoms, single cases, one at a time. It is only when they are shaken out of this concentration that they see their work in its relation to the social structure of which they are a part. Such a perspective is greatly helped by commentaries such as this one of Dr. Pritchett's.

HOOKWORM TREATMENT.

THE United States Department of Agriculture has published the results of studies made in the use of carbon tetrachloride in the treatment of hookworm.

Dr. Mauriér C. Hall tested this drug on dogs and on himself. His results led medical men in many countries to investigate his claims, and favorable results are being received by the department.

A condemned prisoner in Ceylon, infested with hookworm, was treated, and after his execution a post-mortem examination showed that all the parasites had been removed. Ten cubic centimeters of the drug were administered. Twelve thousand natives of the Fiji Islands have been successfully treated by the same method. Thus far, carbon tetrachloride has produced no ill effects, which is in marked contrast with the old remedies of thymol and oil of chenopodium, for fatalities have followed the use of the latter.

Carbon tetrachloride is given in capsules.

Evidence seems conclusive that the health and efficiency of millions of human beings, including many thousands in our southern states, will be improved by the use of this drug.

ALCOHOL AND SYPHILIS AS CAUSES OF MENTAL DISEASE.

DR. GEORGE H. KIRBY has made an analysis of the conditions suggested by the above heading.

He contends that alcoholism has declined perceptibly in the general population during recent years, with a fall in the number of alcoholic psychoses. Also that as a result of education, prophylaxis and improved methods of treatment the influence of syphilis has decreased.

Henry F. Stott, in the *American Journal of the Medical Sciences*, Vol. CLXIII, No. 5,

May, 1922, estimates that 25 per cent. of poorly treated syphilitics subsequently develop syphilis of the nervous system. He contends that a spinal fluid examination should be advised at the conclusion of the second series of arsphenamin treatments, so that when intravenous medication does not prove satisfactory the intraspinal should be instituted.

BIRTH STATISTICS.

THE latest United States government statistics are for 1920. In 1915 there were only ten states in the birth registration area. In 1920 there were 23 states and the District of Columbia—estimated to contain 59.8 per cent. of the population of the United States.

In 1920 there were 1,508,874 live births, which is a birth rate of 23.7 per 1000 population. This is an increase of 1.4 over 1919.

There is a marked excess of births over deaths in the area, Vermont showing the lowest. The mortality rate of infants under one year of age in this area per 1000 is 86. The births by months from 1916 through 1920 are more frequent in March. Then there is a gradual decline until June, when the number rises through September. In 1919 the lowest number of births was in July and was supposed to be accounted for by the epidemic of 1918 and war conditions.

Among white mothers those native of the United States contributed the greatest number of cases of the first child, but this preëminence gradually declines until it is found that native-born women who have given birth to five children fall below native-born women of 13 other countries, representatives of Poland heading the list in this group; and when the record reaches the tenth child, native-born white women of this country are at the bottom of the list.

So far as industry is a factor, fathers classified as foremen, overseers and inspectors in works connected with the extraction of minerals have the highest average number of children, as shown by the figures 4.6, while the foremen and overseers on steam and street railroads come next with 4.2. Farmers are well up with a record of 3.8. Soldiers, sailors and marines seem to be the lowest on the list, with a rating of 1.8.

Among professional men clergymen head the list, with a record of 3.3; lawyers and judges with 2.4; while physicians are credited 2.3.

In 1920 there were 33,209 live births from 17,229 twins, 529 live births from 184 cases of triplets, and 23 live births from six cases of quadruplets. In 1920 the greatest number of children were born to fathers between the ages of 25 and 29 years and to mothers between the ages of 20 and 24 years.

A verification of maternal ages shows that eight mothers were tabulated in the age period of 55 or over.

The statistics relating to illegitimacy are not very satisfactory, because accurate information is not always given on birth certificates in this country. Some states do not require any statement relating to this feature. So far as statistics go, the urban illegitimate rate is 21.3 and the rural 24. No report is published of Massachusetts' illegitimate conditions.

The infant mortality under one year of age is lowest for children of mothers born in Denmark, Norway and Sweden. This rate is 72 per 1000 male births and 61 for females, while children of mothers born in the United States have a rate of 84 per 1000 births. This difference in infant mortality does not seem to be accidental for it persists year after year. The explanation given is that mothers from Denmark, Norway and Sweden more generally suckle their babies.

These statistics are of great interest and will become more valuable with greater uniformity in the reporting of births and deaths. It is generally conceded that our death returns especially are misleading, and the contention is repeatedly made that a revision of the forms in use is needed in order that correct information may be acquired. The present methods have led to bitter controversy. Statistics should be more than a compilation of figures; they should give facts in simple and available form so that students may obtain accurate information and profit thereby.

OPPRESSIVE TAXATION OF THE PRESS.

DURING the war the necessity of increasing the nation's revenue led to a tax on second class mail, by postal regulation, through four successive annual increases ranging from 100 to 900 per cent.

It is generally recognized that the maintenance and progress of civilization depend very largely on the press. An enlightened and available press tends to diminish illiteracy, isolation and prejudice, thereby improving moral and intellectual standards, and every citizen should be interested in the greatest possible facilities for the distribution of opinion and the recital of fact.

A bill known as H. R. 11965, introduced by Congressman M. Clyde Kelly of Pennsylvania, is now before the Postoffice and Post Roads committees of the House of Representatives. It provides for a reduction of the present high postal rates. No logical argument can be advanced for the retention of the present rates

other than an easy way of securing revenue, but the mere consideration of revenue should be in comparison with the main object of provision for postal service. The advantage to the nation of the greatest possible postal service should outweigh consideration of a greater income which might inhibit progress.

It is generally known that a greater volume of second class mail matter increases the amount of first class mail, hence the reduction of war-time postal taxes would, through the release of second class mail, bring about compensatory returns.

Medical literature is carrying some of the burden of the high rates, and medical men should be interested in appealing to members of the Senate and House for a return to pre-war rates.

NEWS ITEMS.

STATE BOARD EXAMINATION OF NURSES.—One hundred and ninety-six applicants for state registration as nurses were examined at the State House, June 15 and 16.

MASSACHUSETTS STATE LEAGUE OF NURSING EDUCATION.—The following officers for the ensuing year were elected at the meeting June 14: President, Miss Sally Johnson, R.N., superintendent of nurses, Massachusetts General Hospital, Boston; vice-president, Miss Jessie E. Catton, R.N., superintendent Lawrence General Hospital, Lawrence; secretary-treasurer, Miss Ruth Humphreys, R.N., assistant superintendent of nurses, Newton Hospital, Newton Lower Falls.

MASSACHUSETTS STATE NURSES' ASSOCIATION.—The following named persons have been elected officers of this association for the ensuing year: President, Miss Carrie M. Hall, R.N., superintendent of nurses, Peter Bent Brigham Hospital, Boston; first vice-president, Miss Sally Johnson, R.N., superintendent of nurses, Massachusetts General Hospital, Boston; second vice-president, Miss Marion Seaver, R.N., superintendent of nurses, St. Luke's Hospital, New Bedford; recording secretary, Miss Mary Alice McMahon, R.N., superintendent of nurses, Boston State Hospital, Boston; corresponding secretary, Miss Mary E. P. Davis, R.N., 19 Hoyle Street, Norwood; treasurer, Miss Mary M. Riddle, R.N., Newton.

BOARD OF HEALTH, WORCESTER, MASS.—Mortality report for April, 1922: United States census, 179,754; death rate, 1921, 13.25; death rate for month, 1.07. Diseases of the heart and blood vessels caused 33 deaths. Bright's disease came next in number with 23 deaths.

NEWPORT, R. I.—Mortality report for the month of May, 1922: Population, 31,047; annual death rate per 1000 population, 6.95. Organic diseases of the heart caused the greatest number of deaths.

NOTES FROM THE NUTRITION INSTITUTE IN BOSTON.—A group of 18 trained workers from all sections of the country spent the first half of June in Boston training for nutrition work. Among the members were the physician in charge of this work in a large hospital, the executive secretary of a Red Cross chapter, several dietitians, a worker preparing to take the direction of a campaign in a large Canadian city, etc. During the last week a special series of lectures and clinics was held for 12 nutrition workers and teachers who are to be a part of Dr. Grenfell's staff this summer in Labrador. The nutrition work began there in 1920 and has already become one of the chief features of the undertaking. Special voyages of the steamer *Stratheona* will carry clinical service, including that of a nose and throat specialist, to the distant stations. Dr. William R. P. Emerson and his assistants left Boston on the 16th to organize an institute in Lincoln, Neb. This will be followed by work in the summer session of the School of Education in the city of Cleveland. Several western cities, including Denver, have institutes arranged for the fall, as well as one in Honolulu.

NEW ENGLAND REPRESENTATIVES IN THE A. M. A.—Among the officers of the American Medical Association, New England is represented by Dr. D. Chester Brown of Danbury, Conn., on the board of trustees, Dr. W. B. Cannon on the Council on Health and Public Instruction, and Dr. Reid Hunt on the Council on Pharmacy and Chemistry. Among the officers of sections the names of Dr. George S. Derby in Ophthalmology, Dr. Paul D. White in Pharmacology and Therapeutics, Dr. James B. Ayer in Nervous and Mental Diseases, and Dr. Franklin W. White in Gastro-enterology and Proctology appear.

THE ANNUAL REPORT OF THE BOSTON SANATORIUM FOR 1921.—This report shows that, of the 760 deaths from pulmonary tuberculosis in Boston in 1921, 409, or 54 per cent., occurred among patients under the care of the Sanatorium. Thirty-six non-pulmonary cases were admitted during the year, and 9297 patients were treated in the Out-patient Department. There has been a decrease in the number of positive cases among new out-patients.

One of the recommendations made by Dr. Edwin A. Locke, chief of staff, is that the Sanatorium shall provide adequate equipment for the treatment of surgical tuberculosis; an-

other is that the board of trustees confer with the authorities of the Harvard Medical School as to the possibility of a combined effort to establish and maintain a department of research in tuberculosis.

During the year Dr. Friedman, assistant physician for diseases of children, resigned, and Dr. James A. Honeij has been appointed assistant physician to the Out-patient Department.

DR. ARTHUR OTIS McLAUGHLIN of Bradford died at the Hale Hospital, Haverhill, following a nervous breakdown, June 18, 1922, at the age of 42. He was a graduate of Tufts College Medical School in the class of 1912. He is survived by his widow and one son.

THE WEEK'S DEATH RATE IN BOSTON.—During the week ending June 17, 1922, the number of deaths reported was 205, against 161 last year, with a rate of 13.99. There were 19 deaths under one year of age, against 19 last year. The number of cases of principal reportable diseases were: Diphtheria, 47; scarlet fever, 20; measles, 160; whooping cough, 15; typhoid fever, 4; tuberculosis, 46. Included in the above were the following cases of non-residents: Diphtheria, 5; scarlet fever, 3; measles, 4; typhoid fever, 4; tuberculosis, 9. Total deaths from these diseases were: Diphtheria, 2; scarlet fever, 1; measles, 2; typhoid fever, 1; tuberculosis, 17. Included in the above were the following cases of non-residents: Diphtheria, 1; typhoid fever, 1; tuberculosis, 3.

BEVERLY HOSPITAL.—The monthly demonstration clinic was held at the Beverly Hospital, June 20, at 4 P. M. Doctors were present from Beverly, Hamilton, Danvers, Salem, Topsfield and Wenham. Following was the program of the clinic: Joint mouse; calculus in urinary bladder; arthritis, tonsils; x-rays of kidneys, pyelography; pregnancy, cardio-renal; hyperthyroidism; fracture of anatomical neck of humerus, x-rays; fracture of surgical neck of humerus, x-rays; cholecystitis with stones; carcinoma of sigmoid, gross and microscopical specimens.

DR. JOHN B. DEAVER, John Rhea Barton professor of surgery, and Dr. John Marshall, professor of chemistry and toxicology, in the University of Pennsylvania School of Medicine, will retire June 30, 1922. Dr. Deaver will, however, retain his position of professor of surgery in the Graduate School of Medicine. The trustees have passed resolutions of regret because of the retirement of these men.

DR. STEPHEN SMITH.—Columbia University has conferred on Dr. Smith the degree of doctor of science.

Society Report.

ANNUAL MEETING OF THE HARVARD MEDICAL ALUMNI ASSOCIATION,

JUNE 15, 1922

THE Annual Meeting of the Harvard Medical Alumni Association was held at the Harvard Medical School at 3.30 P. M., June 15, 1922. Thirty-one members were present.

In the absence of the President, Dr. W. P. Bowers was nominated by Dr. Cheever to act as Chairman of the meeting, which nomination was seconded and carried.

Reading of the Minutes of the previous meeting was omitted by vote. The report of the Secretary was then made, followed by that of the Treasurer. The Appointments Bureau report was then made, following which Dr. Frothingham made a detailed report concerning the collection of subscriptions for the Association's Harvard Medical Alumni Assistants, of which there are five and for which the Association has pledged itself to raise \$500.00 each per annum. This year over \$3,000.00 had been raised, and by vote of the Association Dr. Frothingham was authorized to pay to the Medical School \$2,500.00, and to add the \$600.00 remaining to the Alumni Permanent Fund, in the hands of the Treasurer of Harvard College. Dr. Frothingham's report is as follows:

Balance received from Dr. Hugh Williams.	\$22.31
Collections	3,285.00
	<hr/>
	\$3,307.31
Expense	141.85
	<hr/>
Balance on hand	\$3,165.46

265 subscribers.

Check for \$2,500 sent to Treasurer of Harvard College to pay salaries of five alumni assistants who worked during 1921-22.

Check for \$600 sent to Treasurer of Harvard College to be turned over to the Harvard Medical Alumni Permanent Fund.

CHANNING FROTHINGHAM, Treasurer.

The matter of having the collection of this voluntary subscription combined with the duties of the permanent Treasurer of the Association was then brought up, and after discussion it was voted that this be done, and that the subscriptions henceforth be asked for by the Association's Treasurer. It was then moved and voted that the annual contribution of \$100.00 toward the Commencement Spread be again made this year.

There followed discussions regarding the dues for the Association which necessarily lapsed during the War, and it was voted that the incoming Treasurer send bills for dues to all graduates of the Harvard Medical School of \$1.00 per annum, and that they be sent out

for the present and two ensuing years, namely: 1922, 1923, and 1924.

In regard to membership in the Association, it was moved and carried that it be recommended to the Councillors of the Association that any graduate of the Harvard Medical School should become *ipso facto* a member of the Association.

The report of the Nominating Committee for officers was then presented to the Association, and the Secretary was directed to cast one ballot for their election. The following officers were elected:

Dr. Elliott P. Joslin, Boston, President.
Dr. Maurice Fremont-Smith, Boston, Treasurer.
Dr. F. M. Rackemann, Boston, Secretary.

COUNCILLORS.

For One Year.

Dr. William C. Quinby, Boston.
Dr. Philemon E. Truesdale, Fall River, Mass.
Dr. James L. Gamble, Boston.

For Two Years.

Dr. Michael F. Fallon, Worcester, Mass.
Dr. J. Howard Means, Boston.
Dr. T. J. Burrage, Portland, Me.

For Three Years.

Dr. Homer Gage, Worcester, Mass.
Dr. John M. Birnie, Springfield, Mass.
Dr. William R. Ohler, Boston.

Dr. Worcester then discussed the difficulty which rural communities are experiencing in finding doctors, and suggested that the Association might well help in providing such men. It was moved and carried that the Councillors of the Association consider the medical needs of the rural communities at an early date, to decide whether they may not be able to better conditions which exist in these districts, and to take any measures which they may find possible to come to their relief. Dr. Ames suggested that during the Fourth Year of the Medical School the class be met as a body by some member of this Association, at which meeting such matters might be laid before the students.

Dr. Holland deprecated the fact that the Harvard Medical School is of necessity compelled to limit its classes to such small numbers, following which there was a general discussion of this subject by Dr. Bowers, Dr. Denny, and Dr. Cheever.

The meeting adjourned at 5 P. M., to meet at the Hotel Somerset at 7.

There were about two hundred present at the dinner. The post-prandial exercises were presided over by Dr. Channing Frothingham, who spoke briefly of the conditions incident and subsequent to the war which made it necessary to omit the usual activities of the Association. He gave an account of the funds

raised by the Association for the Medical School and explained that every graduate would be enrolled in the membership of the Association.

He then presented Dr. David L. Edsall, Dean of the Harvard Medical School, who spoke of the conditions existing ten years ago when he came to Boston and compared them with those of the present time. Dr. Edsall explained how crowded the courses of study are today and that a student is pushed to his capacity in trying to cover the work laid out. This will make it necessary for students to have advice in planning for their work. To this end groups of advisors are provided to whom students may appeal for assistance. The men selected will try to know the hearts and minds of the students in order to direct their efforts. Standards are constantly being raised and it has been found that some students are not adapted to the study of medicine. He explained certain differences in methods of conducting examinations which would tend to demonstrate a better understanding of the problems of medicine than could be secured under former customs.

Speaking of the cost of medical education in the Harvard Medical School, it was stated that although the charges for tuition are three hundred dollars per capita, the cost is from eleven to twelve hundred dollars per capita per year, but the annual budget is less for each department than is the case in other institutions of equal standing, and spoke especially of the loyalty of the teaching staff, for these persons are working for lower salaries than could be obtained elsewhere. It has frequently happened that flattering offers have been made to members of the faculty with the hope that their services could be secured for other schools, but it has rarely happened that men have been induced to go elsewhere.

In comparing the cost with other schools, mention was made of the fact that in institutions of equal grade about double the amount of money is expended per capita in teaching.

Dr. Edsall stated it to be his belief that the faculty would rank as the strongest aggregation of talent in any school in this country. He spoke of the great additions in the School of Public Health, Industrial Medicine and the Department of Tropical Medicine, and emphasized the great opportunities presented to students of medicine to be found in the several departments of the Boston City Hospital, the Peter Bent Brigham, the Massachusetts General and the Children's Hospitals. A great aid had been given by the Rockefeller Foundation endowment, which was given without conditions. He paid a graceful tribute to Dr. Frederick C. Shattuck, who had provided for two of these departments.

In introducing the next speaker, Dr. Frothingham spoke of the common impression that a medical school should have a hospital under its control as an essential feature of medical training, but that conditions in Boston gave to the Harvard Medical School all that could be desired, for the Boston City Hospital is most friendly and has asked the School to provide men for some of its departments. Dr. Francis W. Peabody was then presented, who gave a detailed account of the Thorndike memorial which is being erected and equipped as a department of the Boston City Hospital and will be ready for work in the autumn. This building is forty by one hundred and fifty feet and will be equipped with all needful laboratories for research and investigation. Rooms and wards will be provided for the reception of cases requiring special study, drawn from the hospital patients. Funds are available for salaries of assistants working with the director of this service. This will furnish opportunity for advanced study and training and will be a great addition to the Medical School.

In planning for the future, Dr. Frothingham said that the Association in looking for a President felt that a man of super energy was needed at this time, and presented the incoming President, Dr. Elliott P. Joslin.

Dr. Joslin spoke of the work of Dr. F. C. Shattuck, who had done so much for the School in the past, but who although retired had done more than when in active work in his provision for the Schools of Industrial and Tropical Medicine, and conveyed the thought that although few of the alumni could create departments or schools, every one could be of great assistance to the Medical School, for the alumni are scattered all over the country and influence could be exerted on the student body and the faculty. He called several of the alumni by name, asserting that if students would confer with such men, much could be learned about the study of medicine and the problems of practice. He urged members of the Association to express opinions very fully about all matters relating to the School and the Association, for practitioners are in a position to convey advice of great value.

The meeting was thrown open for discussion and Dr. Thayer of Portland spoke briefly, expressing his interest in the Association.

Both the business and social meetings were stimulating and demonstrated great interest in the Association and the School. It was evident that great satisfaction is felt in the resumption of Association activities and it is hoped that concrete evidence of loyalty will be shown in the form of material contributions. The Harvard Medical School should be able to make dignified provisions for its faculty.

Miscellany.

RÉSUMÉ OF COMMUNICABLE DISEASES.

May, 1922.

GENERAL PREVALENCE.

THERE were 8887 cases of communicable disease reported in May, as compared with 8399 cases reported in April, an increase of 488 cases. This is only a slight increase when it is noted that there was a decrease of 1695 cases in April from the March total. The increase was chiefly in the cases of measles reported, the total being 560 higher than in April. The other so-called "common" communicable diseases showed only slight variations.

Chicken-pox was reported in 433 instances, an increase of but 13 cases over last month, and about the usual number.

Diphtheria decreased in incidence, there being 558 cases reported, as compared with 578 for April.

Dog-bite requiring anti-rabic treatment was reported in 23 instances. This condition is still increasing rapidly, as shown in the number of reports received.

There were 10 cases of *epidemic cerebrospinal meningitis* reported, about the usual number of cases.

Encephalitis lethargica was reported in 29 instances. This is less than the total for last month, but is still much higher than 1921.

Gonorrhea and syphilis decreased in the number of reports received from April, there being 378 cases of the former and 140 of the latter reported.

German measles has been increasing slowly but steadily since August of last year, when there were but 10 cases reported. The total for this month is 96.

Measles also has shown a steady increase since the middle of last year. The total for May was 4160, an increase of 557 cases over April.

There were 514 cases of *mumps* reported in May, about the monthly average for this year.

Lobar pneumonia was reported in 417 instances, which is 43 cases more than were reported during May of 1921.

Scarlet fever also showed a slight increase over last year as well as over the previous month, with 757 reported cases.

Tuberculosis, pulmonary, was reported in 605 instances, and *tuberculosis, other forms*, in 120 instances. This increase over the previous month seemed to come from all sections of the state and apparently was not the result of any particular survey or effort toward increased reporting.

Typhoid fever, with 36 reported cases, continues to show an unusually low figure. The deaths for the first four months of 1922 (15) are also of interest compared to the 26 deaths from this disease which occurred during the same period of 1921. If the same proportion of decrease continues throughout the year, there should be not over 70 deaths from this condition in 1922 as compared with 119, the total for 1921.

Whooping cough, with 416 cases, has increased slightly over last month, but is less than the reported incidence for the same month of last year.

RARE DISEASES.

Actinomycosts was reported from Boston, 1.

Dog-bite requiring anti-rabic treatment was reported from Arlington, 4; Cambridge, 2; Chelsea, 2; Lexington, 2; Lowell, 11; Melrose, 1; Newton, 1; total, 23.

Dysentery was reported from Cambridge, 1; Maynard, 1; Milton, 1; total, 3.

Encephalitis lethargica was reported from Boston, 9; Brockton, 1; Brookline, 1; Chelsea, 3; Danvers, 1; Everett, 3; Fall River, 1; Foxboro, 1; Lawrence, 1; Lynn, 2; Milton, 1; New Bedford, 1; South Hadley, 1; Taunton, 1; West Springfield, 1; Worcester, 1; total, 29.

Epidemic cerebrospinal meningitis was reported from Boston, 3; Roxbury, 1; Everett, 1; Haverhill, 1; Lawrence, 1; Revere, 1; Springfield, 1; Williamsburg, 1; total, 10.

Hookworm was reported from Boston, 1.

Malaria was reported from Boston, 2; Fall River, 1; Framingham, 1; total, 4.

Pellagra was reported from Danvers, 1; Rockport, 1; total, 2.

Septic sore throat was reported from Boston, 3; Cambridge, 1; Haverhill, 1; New Bedford, 1; Topsfield, 1; total, 7.

Tetanus was reported from Leominster, 1; Salem, 1; Worcester, 1; total, 3.

Trachoma was reported from Boston, 8; East Walpole, 1; Everett, 1; Lowell, 2; Lynn, 2; total, 14.

Trichinosis was reported from Boston, 1.

THE DENVER SMALLPOX EPIDEMIC.

The *Buffalo Sanitary Bulletin* has published the details of the invasion of this western city as follows:

Denver, Colorado, is at present in the grip of a smallpox epidemic which has already cost that city three-quarters of a million dollars, has disorganized its commerce, driven out innumerable of its inhabitants and kept away every stranger who was not absolutely compelled to come.

The most remarkable part of this smallpox epidemic is its frightful mortality rate. Since January 1, according to the statements issued

by Denver's health officer, 246 cases occurred, with 81 deaths, approximately one-third. It is a long time since any smallpox epidemic with such a mortality rate has occurred, and for this reason it is worthy of special attention.

According to the last federal census Denver has a population of 256,369. Under usual conditions found in smallpox epidemics, it is quite possible that the morbidity and mortality of smallpox in Denver is even greater than indicated.

The health officer's report shows that out of this number of cases 54 had been previously vaccinated and 192 not vaccinated; 9 of the 81 deaths had previously been vaccinated, but in each instance a long period of time had elapsed, as shown by the following: One had been vaccinated 20 years ago, one 35 years ago, one 42 years ago, one 44 years ago, one 35 years ago, one 42 years ago, one 44 years ago, one 48 years ago, one 50 years ago, one 56 years ago, one 60 years ago and one 72 years ago. All the other deaths, 72 in number, had never been vaccinated.

Obituary.

CALVIN PRATT, M.D.

DR. CALVIN PRATT of Bridgewater, who joined the Massachusetts Medical Society in 1868 and was retired in 1908, died suddenly from heart disease at his home, June 17, 1922, at the age of 80.

Dr. Pratt was born in Bridgewater March 24, 1842, son of Dr. Calvin Barton and Mary Thomas (Perkins) Pratt. He was educated in the local schools, graduating from the Bridgewater State Normal School in 1859 and from Harvard Medical School in 1866. He was a direct descendant of Phineas Pratt, one of the earliest settlers in Bridgewater; of Thomas Pratt, a passenger on the Mayflower, and of the Rev. James Keith, first minister in Bridgewater.

After serving in the Civil War as a medical cadet in the Judiciary Square Hospital in Washington, he completed his course at the Harvard Medical School and entered the Massachusetts General Hospital, where he was surgical house officer.

He was president of the board of trustees of Bridgewater Academy, and was also consulting physician at the Bridgewater State Farm, having been attending physician from 1874 to 1884.

On June 19, 1866, he married Miss Adelaide Edstrom of New York, who died a number of years ago. He is survived by a son and three daughters. Dr. John W. Pratt of Dedham, formerly superintendent of the Massachusetts General Hospital, is his brother.

Correspondence.

THE AMERICAN RED CROSS AND PUBLIC HEALTH.

Mr. Editor:

The editorial on "The American Red Cross and Public Health" in a recent number of *THE JOURNAL* should be read and carefully considered by every physician, as it touches upon a subject of deep interest to the members of the profession, whether engaged in private practice or in real public health work.

I must confess that I am a little surprised at the tone of opposition to the report of the Trustees of the American Medical Association, which is shown by the editorial in question, for it seemed to me that the Trustees had faced a difficult situation squarely and made a very proper recommendation. He is a brave man who ventures to oppose the Red Cross, but I believe that the situation is important enough to demand frank discussion and that those who believe in the danger of the present attitude of the Red Cross should be willing to face the situation before it is too late. It is also necessary to draw a sharp distinction between the work of the Red Cross during the war and its present work under peace conditions.

The latter, as it appears to the ordinary observer, is the subject which interests us now and is the one which I propose to discuss.

We are all aware that in many country districts there are two deficiencies: Lack of proper care for the ailing individual and lack of proper supervision of the general health of the community; these deficiencies the Red Cross proposes to supply by furnishing a community with a nurse to do what may be called district nursing and public health nursing.

At first glance this seems to be a very worthy proposal: one worthy of praise and commendation rather than of criticism and opposition; but if it is examined more carefully, I believe that its dangers will be discovered and it will be very evident that the proposed remedy simply tends to perpetuate the very evil which it pretends to cure.

We all know that many of the rural districts in Massachusetts lack the services of a resident physician and must depend for their medical care upon some physician in a neighboring town, who must drive many miles over country roads in order to visit his patient. To such a community the presence of a nurse, who can help the physician when necessary and sometimes save a visit, seems an un-mixed blessing, but the transition from the position of a physician's helper to physician's substitute is very easy and the physician finds his place taken by the nurse and the patient finds that the physician, whom he has failed to call early, is loath to come at the end and wage a losing fight against neglected injury or disease. Often when the nurse has been properly trained and knows that she should not usurp the physician's functions, she is practically forced by circumstances to yield, and we all know that there are many nurses who are only too willing to act as physicians if they have the opportunity.

In either case the result is the same, the physician is not called for minor cases whether of injury or disease and is gradually crowded out and ends by striking that community off his list, so that the last stage of such a community is worse than the first. This is not an imaginary picture but has happened in rural communities in Massachusetts and will happen again unless a determined effort is made to prevent it.

In the more distinctly public health aspect of the question the picture is the same. The average rural board of health, made up as it is of untrained

men, and hampered, as all boards of health are, by lack of money, is very glad to accept the offer of the Red Cross to supply a public health nurse who will care for tuberculosis, for instance, without cost to the community and turns over, illegally, to an unofficial association one of the functions which it is, by law, charged to exercise.

One of the important problems of the day, in Massachusetts, is the improvement of the local boards of health in rural communities, but as long as they can get the work done by others without cost they will never improve, but will rather deteriorate.

It seems to me that if it is proper for the Red Cross to furnish nurses to a rural community which lacks the services of a nurse, it is also proper for it to subsidize or even employ physicians to serve those communities which lack the services of a physician.

There is plenty of work for the Red Cross to do in looking after the returned soldiers and it should confine its activities to that and leave the rural communities to stand on their own feet and gradually learn to walk alone.

FRANCIS GEO. CURTIS, *Chairman*,
Newton Board of Health.

ERRATUM.

June 10, 1922.

Mr. Editor:

Permit me to correct an error that appeared in the June 1st issue, on page 754, of *THE JOURNAL*, under "Narcotic Drug Registration."

You assert that physicians must register with the Internal Revenue Bureau under the Harrison Narcotic Act, in Classes 3 and 5. This is wrong, as medical men must register in Classes 4 and 5.

Just a little slip up, I presume!

Yours fraternally,
MAX BAFF, M.D.

The statement referred to was taken from the circular sent *THE MEDICAL JOURNAL* by the Internal Revenue Department. The collector now states that the printed circular was incorrectly worded and the correction noted by Dr. Baff is according to the law.—Editor.

THE GROPING LAY MIND.

The following contribution may be entitled to space in a humorous column:

"MELBOURNE, 5 May, 1922.

"The Professor of Pathology,

"University of Harvard.

"Dear Sir:

"May I, as one who deeply sympathizes with suffering humanity, express a thought which has been in my mind for some time?

"I understand that inoculation trains defending germs to attack and exterminate the germs of influenza, etc. Is it feasible that a germ might be cultivated which would attain the ability to destroy the germ of syphilis without injuring the human being?

"If a germ were discovered which showed a slight antagonism, could it be used to breed germs which in each succeeding generation would attain increased antagonism until the desired efficiency was attained?

"The enormous amount of sadness in the world which would be replaced by joy and gratitude, should such an event be consummated, is worthy of the greatest devotion of scientists to the task.

"Will you kindly do your best in the matter?

"With best wishes for success in your grand work,

"A LOVER OF HUMANITY."

NOTE.—The Professor of Pathology has not indicated any intention of taking up the education and breeding of germs of this type.—Editor.

A BENEFICENT LAW.

June 16, 1922.

Mr. Editor:

You say in the June issue, under the above caption, some years ago Massachusetts enacted a law providing for the reporting of cases of ophthalmia neonatorum. During 1921 no case of blindness resulted from this disease.

Will you please explain how you obtained your data? The Massachusetts law not only "provides" for reporting all cases, but imposes a fine for failure to report.

Nevertheless, it can hardly be claimed that all cases are reported, and if so reported how has it been possible to follow up the whole of Massachusetts, so as to know the end-results?

The writer is in thorough sympathy with the law and knows full well that appropriate treatment will save most cases from serious impairment of vision if commenced early. But appropriate treatment is well nigh impossible without specially trained eye nurses, and of these there is a very limited supply outside of the Eye and Ear Infirmary.

Massachusetts is one of the few states which does not demand the use of some silver salt as a prophylactic, and there is no disease where the value of prophylaxis is more clearly proved. Unfortunately your readers will infer that prophylaxis is of secondary importance, if simply reporting a case after the disease has become established ensures a 100 per cent. cure.

DAVID W. WELLS.

NOTE.—The statement was taken from facts supplied by the Commission for the Blind.

The contention of Dr. Wells is pertinent because the mere reporting of the case is only the first step to be taken. As soon as the report is received it has been the custom to place a specialist in association with the attending physician. While the necessary nursing care may not always be available, great improvement has resulted, therefore the law is a beneficent one.—Editor.

MASSACHUSETTS CIVIL SERVICE EXAMINATIONS FOR BACTERIOLOGIST IN THE BOSTON HEALTH DEPARTMENT.

The salary is from \$1800 to \$2000 a year. The examination is open to both men and women. Applicants must have had a medical or scientific school education, or its equivalent, and practical training in a private or public bacteriological or public health laboratory for at least two years, or have had equivalent training or experience.

The subjects of examination with their respective weights will be as follows: Training and experience (4); practical laboratory examination in bacteriology, protozoology, helminthology, serology, hematology (4); practical laboratory examination in bacteriology technique (2); total (10).

Applicants will be required to obtain a mark of at least 65 per cent. in training and experience.

Successful applicants will be required to file a certificate from a reputable physician as to their physical fitness for the position.

NOTICE OF EXAMINATION FOR ENTRANCE
INTO THE REGULAR CORPS OF THE UNITED
STATES PUBLIC HEALTH SERVICE.

Examination of candidates for entrance into the Regular Corps of the United States Public Health Service will be held at the following-named places on the dates specified:

At Washington, D. C., July 10, 1922; at New York City, July 10, 1922; at Chicago, Illinois, July 10, 1922; at San Francisco, Cal., July 10, 1922, at New Orleans, La., July 10, 1922.

Candidates must be not less than twenty-three nor more than thirty-two years of age, and they must have been graduated in medicine at some reputable medical college, and have had one year's hospital experience or two years' professional practice. They must pass satisfactorily, oral, written, and clinical tests before a board of medical officers and undergo a physical examination.

Successful candidates will be recommended for appointment by the President with the advice and consent of the Senate.

Requests for information or permission to take this examination should be addressed to the Surgeon General, United States Public Health Service, Washington, D. C.

H. S. CUMMING, *Surgeon General.*

UNITED STATES CIVIL SERVICE
EXAMINATIONS.

Toxicologist, \$3,600 to \$5,000 a year. Associate Toxicologist, \$2,500 to \$3,600 a year. Assistant Toxicologist, \$1,800 to \$2,500 a year. Receipt of applications to close July 3, 1922.

The United States Civil Service Commission announces open competitive examinations for these positions.

PATHOLOGY AND DIAGNOSIS OF TUMORS.—A course in the pathology and diagnosis of tumors will be given by Professor William H. Woglom, M.D., at the Institute of Cancer Research, 1145 Amsterdam Avenue, in connection with the summer session of Columbia University, New York, beginning on July 10, 1922, and lasting for six weeks. Classes will be held daily, except on Saturday, from 2 to 4 p. m. The fee for the course will be \$16.00. Application should be made to the Director of the Summer Session, Columbia University, New York.

DR. FRANK R. SEDGLEY has removed from Fox Hills Hospital, Staten Island, New York, to U. S. Veterans' Hospital, No. 65, St. Paul, Minnesota.

NATIONAL BOARD OF MEDICAL EXAMINERS.

The dates for the next two examinations of the National Board of Medical Examiners are as follows:
Part I and II. June 19, 20, 21, 22, and 23, 1922.
Part I and II, September 25, 26, 27, 28, and 29, 1922.

Applications for the June examination should be in the Secretary's office not later than May 15th, and for the September examination not later than June 1st. Application blanks and circulars of information may be had by writing to the Secretary, Dr. J. S. Rodman, 1310 Medical Arts Building, Philadelphia.

EXAMINATION FOR REGISTRATION.

At the May examination of applicants for registration as physicians in Massachusetts twenty-six were examined, eleven were registered, twelve were rejected, three laid on the table for further consideration.

The medical schools represented are as follows with the tabulated results:

	Registered.	Rejected.	On Table.
Mass. Coll. Osteopathy..	1	1	1
Middlesex Coll. M. & S.	1	4	
St. Louis Coll. P. & S...	1	3	
Geneva Med. Coll.	--	--	1
P. & S. Boston.....	1	2	
Kentucky Sch. Med.....	--	1	
Imperial Karzan	--	--	1
Univ. Munich	1	--	
Univ. Md.	1	1	
Univ. Georgia	1	--	
Dartmouth	1	--	
Bowdoin	1	--	
Columbia Coll. P. & S..	1	--	
Univ. St. Louis	1	--	
	11	12	3

NEW ENGLAND SURGICAL SOCIETY.

C. A. PORTER, *Præs.* P. E. TRUESDALE, *Sec.*
H. L. SMITH, *Vice-Pres.* P. P. JOHNSON, *Treas.*

To the Members of the Society:

The fifth annual meeting will be held at Burlington, Vt., September 22 and 23, 1922, with headquarters at Hotel Vermont.

The following is a tentative outline of the program:

FRIDAY.

- 9 A. M.—Operative Clinic, Mary Fletcher Hospital.
11 A. M.—Dry Clinic, Mary Fletcher Hospital.
12:30 P. M.—Lunch at Ethan Allen Club.
2 P. M.—Scientific program, Hotel Vermont, Roof Garden.
4 P. M.—Steamer Ticonderoga—Boat party to points of historic interest and rare scenic beauty on Lake Champlain.
7 P. M.—Annual dinner on board steamer Ticonderoga.

SATURDAY.

- 9 A. M.—Reading of papers—Hotel Vermont.
12:30 P. M.—Lunch, etc., at Hotel Vermont.
2 P. M.—Completing the scientific program.
The invitation for the 1922 meeting to be held at Burlington has been most cordially extended by the Vermont members.
No part of New England is more picturesque and more memorable in American history. No section of New England is more worthy of a largely attended meeting. So plan to make September 21 and 22 a part of your vacation.

Members are invited to prepare papers for this meeting. The title of each paper should be in the hands of the secretary on or before June 1.

P. E. TRUESDALE, *Secretary*.

BOOKS RECEIVED FOR REVIEW.

The JOURNAL acknowledges the receipt of the following books for review:

Influenza—Essays by Several Authors. Edited by F. G. Crookshank. Published by Wm. Heinemann (Medical Books), Ltd., London. 529 pages. Price 30s.

Advanced Suggestion. 2nd Edition. By Haydn Brown. Published by Wm. Wood & Co., New York. 402 pages. Price \$3.50.

Doctors—Entre Nous. By James Bayard Clark. Published by Medical Times Co., New York. 66 pages. Price \$1.

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

CASES REPORTED WEEK ENDING JUNE 3, 1922.

Disease	No. of Cases	Disease	No. of Cases
Chicken-pox	122	Pneumonia, lobar...	65
Diphtheria	112	Scarlet fever	128
Dog-bite requiring anti-rabic treatment	5	Septic sore-throat...	1
Encephalitis lethargica	1	Syphilis	32
Epidemic cerebro-spinal meningitis..	1	Suppurative conjunctivitis	10
German measles	9	Trachoma	2
Gonorrhea	78	Trichinosis	1
Influenza	4	Tuberculosis, pulmonary	125
Measles	848	Tuberculosis, other forms	26
Mumps	100	Typhoid	9
Ophthalmia neonatorum	9	Whooping-cough	69

CASES REPORTED WEEK ENDING JUNE 10, 1922.

Disease	No. of Cases	Disease	No. of Cases
Anterior poliomyelitis	1	Pneumonia, lobar..	42
Chicken-pox	85	Scarlet fever	112
Diphtheria	98	Septic sore throat..	1
Dog-bite requiring anti-rabic treatment	6	Syphilis	31
Epidemic cerebrospinal meningitis	2	Suppurative conjunctivitis	7
German measles	20	Trachoma	2
Gonorrhea	83	Tuberculosis, pulmonary	165
Influenza	4	Tuberculosis, other forms	37
Malaria	2	Typhoid	7
Measles	859	Whooping Cough	87
Mumps	100		
Ophthalmia neonatorum	16		

NOTICES.

BOSTON SANATORIUM, FORMERLY BOSTON CONSUMPTIVES' HOSPITAL. Name changed by City Ordinance, January 18, 1922. Trustees' office, 1001 City Hall Annex. Hospital, 249 River Street, Mattapan. Men, women and children, residents of Boston, in all stages of pulmonary tuberculosis, are admitted. Patients with non-pulmonary tuberculosis are admitted when there is room for them. Apply to the Superintendent of the Hospital, Dr. A. J. White, or to the Superintendent of Nurses of the Out-Patient Department, Miss Gardner, for admission. Out-Patient Department, 13 Dillaway St., Boston. Open on Mondays, Wednesdays, Fridays and Saturdays from 9 to 11 a.m., and on Monday evenings from 7 to 9 p.m. On Saturday mornings there is a special clinic for children. Telephones: Hospital, Milton 2310; O.P.D., Beach 3430 and 2040. Milton cars from Forest Hills pass the Hospital.

NEW YORK AND NEW ENGLAND ASSOCIATION RAILWAY SURGEONS.—The thirty-second annual session of the New York and New England Association Railway Surgeons will be held at the Hotel McAlpin, Broadway and 34th Street, New York City, on Saturday, October 28, 1922, under the presidency of Dr. Donald Guthrie of Sayre, Pa. A very attractive and interesting program is being arranged for this session.

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WILLIAM RICE, D.M.D., *Dean.*

Massachusetts General Hospital

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Patients are referred back to the doctor who sends them to us. Several visits may be necessary to establish a diagnosis, and when ordered by the clinic staff, no additional charge will be made for such visits. Upon completion of the examination a report will be sent to the doctor who refers the case.

No appointment is necessary.

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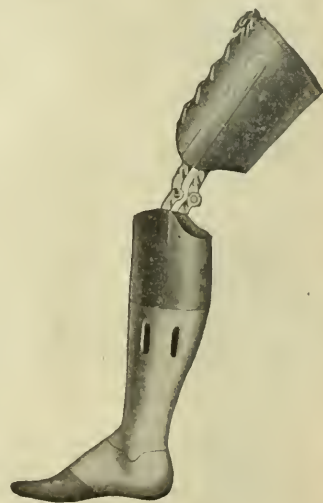
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